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Using Digital Technology Among Preschool Children in Urban Community: Parents' Observation

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ABSTRACT

Background: The increasing use of devices such as tablets, smartphones, and computers has significantly changed how children engage with their surroundings, often replacing traditional play activities. These digital tools can have both beneficial and adverse effects on child development. **Objective:** This study aimed to assess digital technology use among preschool children in an urban community based on parents' observations. Methods: A descriptive cross-sectional study was conducted from January 2024 to November 2024 in selected schools in Dhaka City, Bangladesh (YWCA Higher Secondary Girls School, Assemblies of GOD Church School, Silverdale Preparatory Girls High School, and Zamzam Point International School & College). A total of 123 parents of preschool children aged 3-6 years participated using a purposive sampling technique. Data were analyzed using MS Office and SPSS version 26.0. **Results:** Of the 123 participants, 83.7% were women. Most mothers (60.2%) and fathers (78%) were aged 20-30 years. While 48.8% of parents reported that their children began using digital devices between the ages of 3 and 4, 69% noted use for social media. Half of the children used digital devices for about two hours daily. Reported adverse effects included sleep disturbances (40.7%), headaches (36.6%), body aches (35.5%), and behavioral issues like restlessness (49.6%). Parents felt digital overuse reduced study time (64.2%) and creativity (63.4%). **Conclusion:** Digital technology significantly influences preschoolers' physical, psychological, and social health. Parental monitoring, awareness, and promotion of balanced lifestyles are essential. Broader studies are recommended for generalizability.

Keywords: Digital technology, Health effects, Parents, Preschool children, Urban community

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INTRODUCTION

Digital technology refers to a globally interconnected system of computing devices that allows for the rapid sharing and retrieval of information [1]. Over the past decade, the prevalence and use of digital technology have expanded significantly across the globe [2]. This surge is largely fueled by the increasing availability and affordability of personal computers, laptops, smartphones, and internet access, which have transformed the everyday lives of millions [3]. These advancements are not only reshaping lifestyles but also influencing individuals' thoughts, behaviors, and daily routines—both positively and negatively [4]. In recent years, digital technology has become deeply embedded

in nearly every aspect of daily life [5]. From communication to education, entertainment, and beyond, it is now a vital tool for people of all ages [6]. For many, especially in urban communities, digital devices have become essential, with users relying on them for education, social interaction, and leisure activities. In particular, young children are increasingly drawn to platforms like YouTube, mobile games, and social media applications [7]. However, this growing engagement raises concerns about potential overuse and dependency. When digital consumption becomes excessive and begins to interfere with daily functioning, it may develop into what is termed "digital technology addiction" [8]. Traditional methods of education have undergone substantial transformation due to rapid advancements in digital tools and resources [9]. These shifts have prompted students, even from an early age, to engage with digital platforms as a primary means of acquiring information and learning new skills [10]. Consequently, many parents view access to digital devices as indispensable for their children's education [11]. As a result, screen time among children has risen significantly, often exceeding recommended limits [12]. Prolonged exposure to digital technology has been associated with behavioral challenges and psychological concerns in some children [13,14].

When these symptoms stem directly from excessive digital engagement, they fall under the category of digital addiction, which is now a growing public health concern [15]. The preschool period, spanning from birth to approximately six years of age, is considered a foundational stage for cognitive, emotional, and behavioral development [16]. This is a critical phase during which children begin to move beyond the family unit, initiate peer relationships, and engage more actively in social environments. The settings in which young children interact during this time play a crucial role in shaping their curiosity, learning styles, and interpersonal skills. Technological devices are now a major medium through which these interactions occur. As such, they serve as both tools of exploration and sources of stimulation for young minds [17]. While digital technology offers educational opportunities and helps develop certain cognitive abilities, it also poses risks when used inappropriately or without supervision. The balance between beneficial and harmful effects depends greatly on how, when, and how often these technologies are used. This calls for increased awareness among caregivers, educators, and healthcare professionals regarding the appropriate use of digital technology in early childhood. Encouraging structured screen time, promoting physical activity, and fostering face-to-face social interactions are essential steps to ensure healthy development in the digital age.

METHODOLOGY

This cross-sectional descriptive study was conducted in four selected schools in Dhaka City, Bangladesh-YWCA Higher Secondary Girls School, Assemblies of GOD Church School, Silverdale Preparatory Girls High School, and Zamzam Point International School & College from January 2024 to November 2024. A total of 123 parents of preschool-aged children (3-6 years) were selected using a purposive sampling technique. Data was collected through face-to-face interviews using a structured and pre-tested questionnaire. Participants were selected from the mentioned schools, and the majority of respondents were female. Before data collection, written consent was obtained from all participants, and formal approval was granted by the ethical committee of the respective institution. Inclusion criteria comprised parents of children aged 3-6 years who had access to the internet at home via Wi-Fi or mobile data. Parents with known mental or emotional health conditions or those unwilling to participate were excluded from study. All collected data were checked for completeness and consistency, then entered and analyzed using MS Office tools and SPSS version 26.0. Descriptive statistics were used to summarize the findings.

RESULT

In this study, 60.2% of mothers were between 20-30 years of age, while 78% of the fathers were in the 31-40 years' age group. Among the children, 38.2% were enrolled in a play group, and 35.8% were in a nursery class. Regarding parental education, 26.8% of mothers had completed higher secondary education (HSC), whereas 31.7% of fathers held a master's degree or higher. Based on parents' perceptions, 49.6% reported that their children first used digital technology between the ages of 1–2 years, 48.8% between 3-4 years, and only 1.6% between 5-6 years. In terms of daily screen time, 51% of parents stated their children used digital technology for two hours per day, 20% for one hour, 39% for three hours,

and 12% for four hours. When asked about skill acquisition, 45.53% of parents believed their children learned new skills through digital media, while 54.47% did not observe any such benefit. Regarding the purpose of use, 69% of children used digital technology for watching videos or playing games, 5% for social media, 4.9% for phone calls, 8.9% for educational activities, and 12.2% for other purposes. Using a Likert scale, the study assessed behavioral and psychological impacts. About 49.6% of parents agreed, and 18.7% strongly agreed that their child showed limited social interaction during family visits, while 13.8% strongly disagreed. A majority (59%) felt their child was well-behaved and generally complied with adult instructions, whereas 11% disagreed. Regarding aggression, 8.9% strongly agreed and 13.8% agreed that their child frequently fought with peers, while 52.8% disagreed and 17.9% strongly disagreed. The psychological effects of digital technology were also explored using the Likert scale.

About 64.2% of parents believed excessive digital use significantly reduced their child's study time, and 63.4% felt it substantially hampered creativity. Moreover, 72% observed some decline in study habits and concentration. Nearly half (49.6%) reported that their child was somewhat restless, while 17.9% said they had never noticed such behavior.

Table 1: Age distribution of respondents (N=123)

Age (Year)	Mother	Father
20-30 Yrs.	74(60.2%)	8(6.6%)
31-40 Yrs.	48(39%)	96(78%)
≥41 Yrs.	1(0.8%)	19(15.4%)

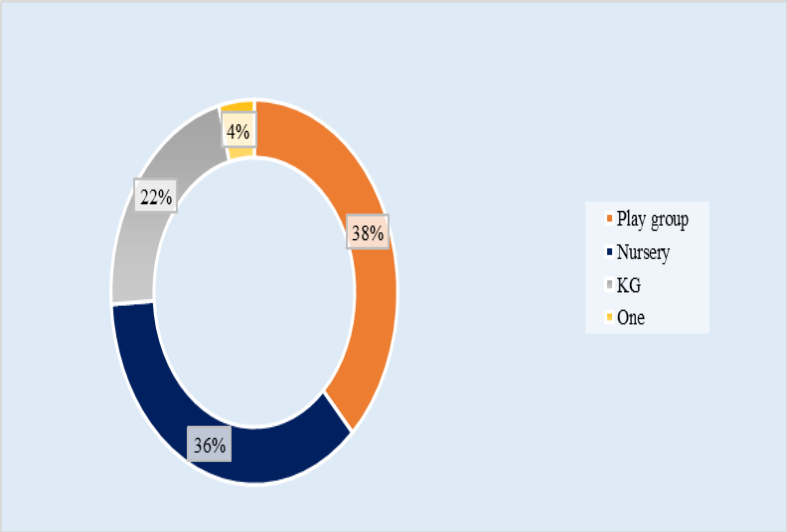

Figure 1: Ring chart showed distribution of children's education level (N=123)

Table 2: Distribution of the respondents according to parents' education level (N=123)

Parent's education	Mother	Father
Primary	6(4.9%)	2(1.6%)
Secondary	10(8.1%)	7(5.7%)
SSC	32(26%)	28(22.8%)
HSC	33(26.8%)	22(17.9%)
Graduation	25(20.3%)	25(20.3%)
Masters & above	15(12.2%)	39(31.7%)
Others	02(1.6%)	0

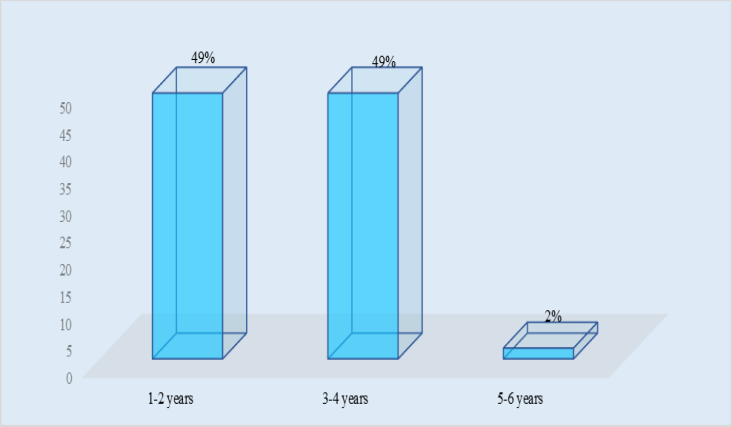

Figure 2: Column chart showed parents' perception according to age during their child's first use of digital technology (N=123)

Table 3: Perception of parents according to learned any new skills from digital technology of their children (N=123)

Learn new skills	n	%
Yes	56	45.53%
No	67	54.47%

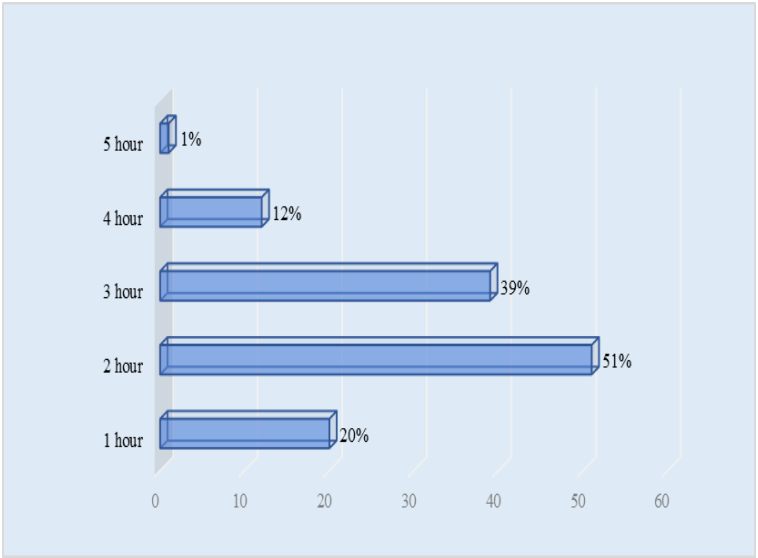

Figure 3: Bar chart showed parents' perception according to the duration of use of digital technology (N=123)

Table 4: Parents' perception according to the purpose of digital technology use (N=123)

Purpose of use of digital technology (children)	n	%
Social media (Facebook/Twitter, Instagram, etc.)	06	05
Watching videos/playing games	85	69
Phone Calls	06	4.9
Educational Activities	11	8.9
Others (taking pictures, record videos, listening to music)	15	12.2

Table 5: Distribution of the respondents according to physical effects (N=123)

Physical effect	Never	Rarely	Somewht	Much	Very much
Headache	25(20.3)	18(14.6)	45(36.6)	33(26.8)	2(1.6%)
Decreased visual acuity:	68(55.3%	21(17.1)	17(13.8)	04(3.3%)	13(10.6%)
Body aches in the neck, wrist, and back	54(43.9)	11(8.8%)	43(35%)	15(12.2)	0
Lose weight and feel tired	56(45.5)	10(8.1%)	22(17.9)	22(17.9)	13(10.6%)
Weight gain (Obesity)	89(72.4)	3(2.4%)	19(15.4)	09(7.3%)	3(2.4%)
Loss of hearing sense	101(82.1)	13(10.6)	6(4.9%)	03(2.4%)	0
Lack of sleep disruption	27(22%)	4(3.3%)	50(40.7)	30(24.4)	12(9.8%)
Observed a low state of physical development	39(31.7)	17(13.8%)	38(30.9%)	24(19.5%)	5(4.1%)

Table 6: Distribution of the respondents according to psychological effects (N=123)

Psychological effects	Never	Rarely	Somewhat	Much	Very much
Overuse of digital technology often takes the study time	7(5.7%)	23(18.7%)	5(4.1%)	79(64.2%)	9(7.3%)
Creative thinking hampers your child	10(8.1%)	18(14.6%)	9(7.3%)	78(63.4%)	8(6.5%)
Observe any decline in study habits and concentration in your child	10(8.1%	21(17.1%)	5(4.1%)	72(58.5%)	15(12.2%)
Irritability/restlessness	22(17.9%)	15(12.2%)	61(49.6%	19(15.4%)	6(4.9%)

DISCUSSION

In this study, 35.8% of parents reported that their child was first exposed to digital technology at the age of two, followed by 28.5% at the age of three. Regarding daily screen time, 41.5% indicated that their children used digital devices for two hours per day, and 31.7% reported usage of three hours daily. The most common activity was watching movies or playing video games (69%), while only 8.9% of children used digital technology for educational purposes. A small proportion (5%) engaged with social media platforms such as Facebook, Twitter, or Instagram. Comparatively, a study conducted in Gopalganj, Bangladesh, reported higher digital engagement, with 78% of students using Facebook and 41% using Google for educational and other purposes [18]. In our study, 59.3% of parents stated that their children gained no knowledge from digital media, while 40.7% noted some benefits. Specifically, 45.53% reported their child learned new skills such as language (41.07%), drawing (26.79%), music (17.86%), and dancing (14.29%). Ponder [19] similarly emphasized the value of structured extracurricular activities like language learning, music, dance, and creative pursuits. Previous research supports the idea that well-designed digital learning tools can enhance early literacy and cognitive development [20–22]. Social and behavioral effects were also explored using a Likert scale. Around 49.6% of parents agreed, and 18.7% strongly agreed, that their children displayed minimal socialization when relatives visited, suggesting reduced interpersonal interaction. However, 59% of parents reported that their children were generally well-behaved and followed adult instructions. Concerning aggression, 15.4% strongly agreed, and 59.3% agreed that their children frequently fought with peers. In contrast, 12.2% disagreed, and 2.4% strongly disagreed with this statement. Studies have shown that interactive and open-ended computer programs that promote imaginative expression and allow children to make creative choices can support engagement and learning [23]. However, excessive screen time may lead to physical and psychological side effects. In our study, 36.6% of parents reported their child experienced headaches to a slight extent, and 26.8% reported frequent headaches. Similar findings were reported in a Turkish study, where screen time was associated with headaches, back pain, neck stiffness, and dry eyes. Stigliani [24] also noted additional health problems like muscle fatigue, vision issues, and obesity due to excessive technology use. Our findings indicated that 35% of children experienced body aches, particularly in the neck, wrists, and back, and 12.2% suffered significantly. Around 17.9% of parents reported their child frequently felt tired or lost weight, while 45.5% noted no such issues. Only 2.4% observed rapid weight gain. Regarding hearing, 82.1% of parents denied any

hearing loss, while 2.4% reported occasional deafness. Sleep disturbances were also reported: 22% of parents said digital technology never disrupted their child's sleep, but 40.7%, 24.4%, and 9.8% noted mild to severe disruptions. In terms of physical development, 31.7% of parents noticed no delay, whereas 30.9%, 19.5%, and 4.1% observed mild to severe delays. Academically, 64.2% of parents believed that digital technology significantly took away from their child's study time. Moreover, 63.4% believed it significantly hindered creative thinking. Although 8.1% saw no effect, many parents (72%) observed a reduction in study habits and concentration, aligning with prior studies showing that poorly regulated screen use may negatively impact cognitive and academic performance [25,26].

Limitations

This was a single-center study with a limited sample size and a short study duration. Therefore, the results may not accurately represent the broader national context.

CONCLUSION

Digital technology has become an integral part of daily life for preschool-aged children, with many starting to use it as early as one to two years old. While some parents reported skill development, the majority observed negative effects such as reduced socialization, headaches, body aches, and a decline in study habits, concentration, and creativity. These findings highlight the need for balanced and mindful use of digital technology in early childhood.

Recommendations

Parents should monitor preschoolers' screen time and content, choosing age-appropriate educational material. Limiting use reduces negative impacts on health, behavior, and cognition. Schools and health professionals must raise awareness of excessive screen risks and promote interactive, real-world learning and play.

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