Original Research Article

Socio Demographic Characteristics of Digital Technology User Preschool Children in Selected Urban Community in Dhaka City

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Abstract: *Background*: In today's digital age, the use of technology has become increasingly prevalent even among preschool-aged children. *Objective:* The objective of the study was to explore the socio-demographic characteristics of preschool children who engage with digital technology in a selected urban community in Dhaka City. *Methodology:* A cross-sectional research study was conducted to assess digital technology usage among preschool children aged 3 to 6 years in Dhaka city, Bangladesh. The study involved the participation of 123 parents between January 2024 to November 2024 from four selected schools: YWCA Higher Secondary Girls School, Assemblies of GOD Church School, Silverdale Preparatory Girls High School, and Zamzam Point Int. School & College. Data was gathered through in-person interviews using a semi-structured questionnaire. Participants were chosen through a convenient sampling method, and ethical approval was obtained from the Institutional Review Board (IRB) of BSMMU. *Results:* A total of 123 parents have participated in the study. Among them, 83.7% were women and 16.3% were men.60.2% mothers were between the ages of 21 and 30, and 78% fathers were between the ages of 31 and 40 years. 26.8% of mothers had completed H.S.C level, and 31.7% of fathers had a master's degree or more. Among the parents, 48.8% parents thought that children first used digital technology between the ages of 3 and 4 years. *Conclusion:* This study highlighted the growing concerns surrounding digital technology use among preschoolers in Dhaka and underscores the need for further research on its influence on young children's development.

Keywords: Preschool Children, Digital Technology, Screen Time, Activities.

Introduction

The digital world has become an inescapable reality, weaving itself seamlessly into the tapestry of everyday life. This immersive presence is particularly significant for young minds, with preschoolers increasingly encountering a kaleidoscope of screens and devices.[1] Understanding how these digital encounters intersect with preschoolers' sociodemographic realities is crucial for navigating the complex terrain of child development in a tech-saturated world.[2] Studies indicate that the utilization of digital technology affects a child's physiological, psychological, and social development, influencing their cognitive skills, attention span, and even sleep patterns .[3, 4] These impacts, however, may play out differently depending on a child's background, family structure, and economic context. Studies in developed nations have highlighted disparities in digital access and usage based on socioeconomic status, highlighting the need for context-specific investigations in developing countries like Bangladesh.[5] Urban Dhaka City, a bustling

metropolis teeming with life, presents a unique and understudied microcosm for exploring the interplay between sociodemographic factors and preschool digital technology use. Here, a confluence of socioeconomic diversity, rapid technological advancements, and cultural nuances creates a dynamic landscape where the digital experiences of preschoolers may differ significantly from those observed in other settings.[6] This study delves into this uncharted territory, shedding light on the sociodemographic tapestry of preschool digital technology users in urban Dhaka City. We present a nuanced picture of who these young tech explorers are, examining how factors like gender, age, family composition, and parental education shape their digital encounters. By drawing on insights from both local and global research, we aim to illuminate the unique digital landscape inhabited by preschoolers in this vibrant corner of Bangladesh. Through this exploration, we hope to foster a deeper understanding of the factors that shape young children's digital experiences in under-researched contexts like Dhaka City. Our findings can inform the development of culturally sensitive and age-appropriate strategies for responsible digital engagement, ensuring that preschoolers navigate the digital world with awareness, safety, and a touch of wonder.

Objective

This study examined the sociodemographic attributes of preschoolers in a specific urban community in Dhaka City, Bangladesh.

Methodology

A cross-sectional research study was conducted to assess the digital technology usage among preschool children aged 3 to 6 years in Dhaka city, Bangladesh. The study involved the participation of 123 parents between January 2024 to November 2024 from four selected schools: YWCA Higher Secondary Girls School, Assemblies of God Church School, Silverdale Preparatory Girls High School, and Zamzam Point International School and College.

Inclusion Criteria

A parent with preschool-aged children (3-6 years). Has internet connectivity at home via Wi-Fi or cellular data.

Exclusion criteria

Parents afflicted with illnesses such as mental or emotional disorders.
Individuals who did not voluntarily participate.

Data Collection and Analysis

A semi-structured questionnaire was employed in this study to collect data on various aspects, including sociodemographic characteristics, parents' perceptions of digital technology usage, types and duration of activities, and both positive and negative effects of digital technology. A 5-point Likert Scale was used for the questionnaire, which was translated into Bangla. Data were collected via face-to-face interviews with 123 participants from four designated schools in Dhaka, Bangladesh: YWCA Higher Secondary Girls School, Assemblies of GOD Church School, Silverdale Preparatory Girls High School, and Zamzam Point International School & College. The majority of the parents participating in the study were female.

Prior to data collection, written permission was obtained, and participants were informed about the study's objectives and procedures, with assurances of data confidentiality. Each participant was assigned a unique ID number to protect anonymity. Interviews were conducted in Bangla, translated into English, and recorded data was securely stored. Access to data was restricted to research personnel for research purposes.

Data collected through the questionnaire was entered into a database using SPSS version 26. Data quality checks were performed manually to identify any incomplete or inconsistent entries. Descriptive statistics such as frequency, percentage, mean, standard deviation (for symmetric data), median, and interquartile range (for asymmetric data) were used for analysis. After addressing any data issues, the dataset was ready for final analysis.

Results

Our exploration into the digital landscape of Dhaka's preschoolers revealed a vibrant tapestry woven with diverse threads of gender, family composition, and parental perspectives. While mothers represented a significant majority (83.7%), fathers' voices also played a crucial role in shaping the digital experiences of their young tech explorers. Interestingly, the preschoolers

themselves mirrored this familial diversity, with girls comprising 65% of the participants and boys contributing the remaining 35% (Figure 1)

This demographic snapshot highlights the importance of considering gender and family dynamics when examining preschoolers' interactions with technology. It suggests that mothers and fathers may bring different approaches and priorities to their children's digital engagement, and that girls and boys may navigate the digital world in distinct ways. Recognizing these nuances is crucial for developing age-appropriate strategies and responsible digital guidance tailored to the needs of diverse young minds.
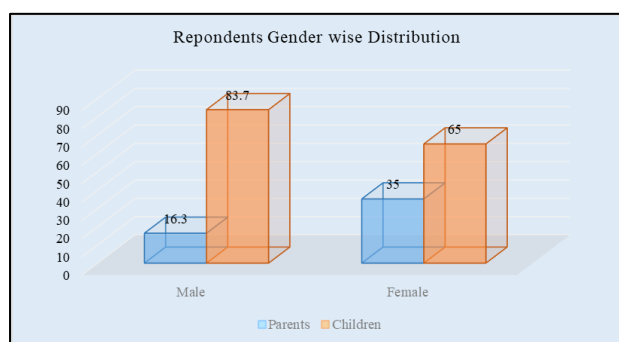
Figure 1: Distribution of participants by gender (N=123)

Our exploration of preschool digital technology used in Dhaka City revealed a diverse landscape of young minds in various educational stages. The children participating in the study spanned the ages of 3-6 years, with 17.9% falling within the 3–4-year range and 82.1% representing the 5-6-year age group. This distribution suggests a mix of early and later preschool stages, offering insights into digital engagement across developmental phases.

Further analysis uncovered the educational contexts shaping their experiences. 38.2% of the children attended playgroups, signifying exposure to socialization and early learning activities. Meanwhile, 35.8% participated in nursery classes, indicating a structured pre-primary curriculum. This diversity in educational settings underlines the need to consider the interplay between learning environments and digital technology use within the preschool years.

Interestingly, the linguistic milieu of these young tech explorers displayed a clear preference for Bangla. 93.5% of the children attended Bangla medium schools, highlighting the importance of considering culturally and linguistically relevant approaches when developing digital resources and guidance for preschoolers in this context. The remaining 6.5% studied in English medium schools, suggesting a growing presence of bilingual education within Dhaka's preschool landscape (Table 1).

Table 1: Distribution of respondents based on child's age, educational attainment, and medium of instruction (N=123)

Variables	Frequency (n)	Percentage (%)
Age in Years		
3-4 Years	22	17.9%
5-6 Years	101	82.1%
Children education level		
Play group	47	38.2%
Nursery	44	35.8%
KG	27	22.0%
One	5	4.1%
Medium of education		
Bangla Medium	115	93.5%
English Medium	8	6.5%

Diving deeper into the demographics of our participants, we observed a distinct clustering in parental age groups. Mothers presented a younger profile, with 60.2% concentrated in the 21-30 age range, suggesting a prevalence of younger mothers within this sample. In contrast, fathers were predominantly found in the 31-40 age bracket (78%), highlighting a potential age disparity between parenting roles. This disparity extends to professional positions, 82.9% of moms are classified as housewives, whereas 52.8% of fathers are identified as service holders. This distribution suggests specific contributions to family dynamics, with mothers likely assuming a more significant role in childcare and early development, while fathers focus on professional pursuits. Educational backgrounds further underscore this divide. 26.8% of mothers completed their Higher Secondary Certificate (HSC), a key milestone in Bangladeshi education, while 31.7% of fathers attained master's degrees or higher. This suggests a potentially

higher level of formal education among fathers, which may influence their perspectives and approaches towards technology use in their children (Table 2). These intertwined threads of age, profession, and education weave a complex tapestry of family dynamics within our study. Recognizing the prevalence of young mothers, stay-at-home mothers, and fathers with higher education is crucial for understanding the context in which preschoolers in Dhaka City engage with technology. This nuanced understanding can inform the development of culturally sensitive and family-centered strategies for responsible digital engagement, ensuring that all young minds, regardless of family background, are equipped to navigate the digital world safely and effectively.

Table 2: Distribution of respondents based on parental age, occupation, and educational attainment (N=123)

Variables	Mother	Father
Age in years		
21-30 Years	74(60.2%)	8(6.6%)
31-40 Years	48(39%)	96(78%)
41 Years and above	1(0.8%)	19(15.4%)
Occupation		
Housewife/House Husband	102(82.9%)	0(0.0%)
Business	7(5.7%)	58(47.2%)
Service	12(9.8%)	65(52.8)
Others	2(1.6%)	0(0.0%)
Parent's education level		
Primary	6(4.9%)	2(1.6%)
Secondary	10(8.1%)	7(5.7%)
S.S.C	32(26%)	28(22.8%)
H.S.C	33(26.8%)	22(17.9%)
Graduation	25(20.3%)	25(20.3%)
Masters & above	15(12.2%)	39(31.7%)
Others	2(1.6%)	0(0.0%)

Delving further into the family constellations of our participants, we unveiled a picture of diverse marital statuses and household compositions. The vast majority, 97.6%, identified as married, reflecting the dominant family structure in this context. However, a small percentage of participants reported non-traditional family structures, with 1.6% experiencing divorce and 0.8% separation. Recognizing these diverse experiences is crucial for understanding the varied dynamics that may influence technology use within families. Household composition also emerged as a significant factor. 73.2% of participants hailed from single-family units, highlighting the prevalence of nuclear families within this sample. In contrast, 26.8% belonged to joint families, where multiple generations reside under one roof. These distinct structures suggest potentially differing levels of support and shared responsibility for child-rearing, which may impact parental approaches to digital technology use. Financial stability plays a crucial role in shaping children's experiences, and our study shed light on the diverse income range among participants. 54.5% of families fell within the 20,000-40,000 BDT monthly income bracket, indicating a significant portion grappling with moderate financial means. Meanwhile, 23.6% earned between 41,000-60,000 BDT, offering slightly greater financial security. Smaller percentages belonged to the 61,000-80,000 BDT (5.7%) and 81,000 BDT and above (16.3%) brackets, hinting at a range of economic realities within the sample. Understanding these diverse family structures and income levels is vital for interpreting the research findings and developing contextually relevant strategies for responsible digital engagement. Recognizing the challenges of single-family households, navigating the dynamics of joint families, and addressing diverse economic realities is essential for fostering safe and enjoyable digital experiences for preschoolers in Dhaka City (Table 3).

Table 3: Distribution of respondents based on Marital Status, Family Status, and Monthly Family Income (N=123)

Variables	Frequency (n)	Percentage (%)
Marital Status of Mother/Caregiver		
Married	120	97.60%
Divorced	2	1.60%
Separated	1	0.80%
Family Types		
Single Family	90	73.20%
Joint Family	33	26.80%
Monthly family income (BDT)		
20,000-40,0000	67	54.50%
41,000-60,000	29	23.60%
61,000-80,000	7	5.70%
81,000 and above	20	16.30%

Our exploration of the family context surrounding preschoolers' digital engagement revealed a diverse terrain of sibling configurations. Analyzing participant data, we observed a distinct distribution in the number of children per family: 47% of participants had two children, closely followed by 46% with one child, and a smaller but significant 7% with three children. This multifaceted picture emphasizes the need to consider the influence of siblings on young children's digital experiences. Families with two children present a unique dynamic, potentially fostering competition, collaboration, and shared play during digital interactions. On the other hand, single children may navigate the digital world solo, perhaps enjoying increased parental attention and access to devices, but potentially missing out on peer-to-peer learning and collaborative explorations. Families with three or more children introduce even more complex dynamics, offering diverse opportunities for shared play and learning, but also presenting potential challenges in managing screen time and ensuring equitable access to devices. Recognizing these diverse sibling landscapes is crucial for tailoring responsible digital engagement strategies. For instance, families with two children may benefit from resources promoting cooperative play and digital etiquette, while single children might require greater encouragement for social interaction and offline activities. In families with multiple children, establishing clear rules and schedules for device use can become even more important to ensure fairness and prevent conflict. Understanding the number of children in a family, alongside other demographic factors, contributes to a comprehensive picture of the context shaping preschoolers' digital lives. By acknowledging the distinct dynamics of diverse sibling configurations, we can pave the way for fostering positive and responsible digital engagement for all young minds in Dhaka City (Figure 2).
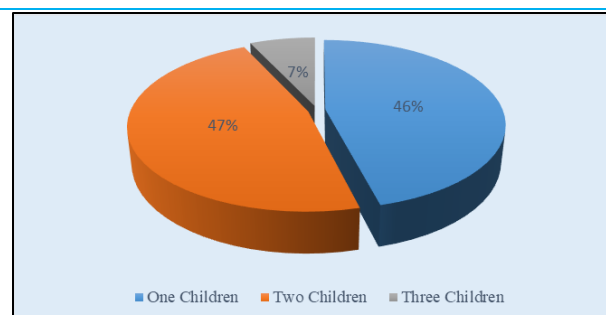
Figure 2: Respondent distribution based on the number of children (N=123)

Discussion

This study explored the diverse landscape of preschool digital technology use in Dhaka City, Bangladesh, with a focus on how sociodemographic factors might influence young children's experiences. By delving into the age, education, profession, and family structure of participating families, we can paint a more nuanced picture of the context surrounding digital engagement. In this research, the study observed that 65% of the children were female, while 35% were male. Similar gender distribution percentages were also identified in another study, 43.6% of the participating children were female, whereas 56.4% were male.[7] Additionally, our study revealed that 60.2% of mothers fell within the age range of 20 to 30 years, while 56.1% of fathers were aged between 36 and 50 years. Remarkably similar results were found in a separate study conducted in Hong Kong. More over 70% of the parents were aged between 21 and 40.[8] In this study, the medium of instruction was the mother language for 93.5% of participants and English for 6.5%. This finding corroborated the study. The majority of respondents in this study attended Bangla medium schools (70.3%), followed by English medium schools (12.4%) and Madrasha (17.4%).[9] The educational background of parents also emerged as a factor. While a notable portion of mothers completed their HSC (26.8%), fathers often held Master's degrees or higher (31.7%). This suggests potentially differing comfort levels with technology and approaches to digital guidance within families. Furthermore, the majority of fathers were service holders (52.8%), potentially impacting the time they have for actively engaging with their children's digital world. Further examination of similar studies in urban settings has shown that the educational background of parents and its influence on technology use among

preschoolers is a recurring.[10] study conducted in a densely populated urban area in the United States found similar disparities in parental educational backgrounds and its potential impact on children's digital experiences.[11] This suggests that the interplay between parental education, occupation, and technology use among preschoolers is a global phenomenon with implications for digital guidance within families across different cultural contexts. The study revealed a mix of single-family (73.2%) and joint-family structures (26.8%). These distinct configurations can offer different levels of social interaction and support for technology use. Additionally, the income range varied, with over half of participants falling within the 20,000-40,000 BDT bracket (54.5%). This highlights the need to consider financial constraints when developing resources and recommendations for responsible digital engagement. Recognizing the interplay of age, gender, education, profession, family structure, and income is crucial for interpreting our findings and developing contextually relevant strategies. To better understand the nuances of preschool tech engagement, future research should delve deeper into how these factors interact and shape children's experiences.

Conclusion

This study provides a snapshot of the sociodemographic landscape surrounding digital technology use among preschoolers in a selected urban community of Dhaka City. We observed a diverse representation of genders, with 65% females and 35% males, highlighting the equal access and engagement with technology across genders. Nearly 38% of children participated in playgroups, suggesting parental emphasis on social development alongside digital exposure. The findings reveal an early initiation into the digital world, with nearly 50% starting between 1-2 years old. This highlights the need for further research into the implications of such early exposure on young minds. The average usage of 2 hours per day further emphasizes the need for parental guidance and structured digital engagement strategies. While this study focused on sociodemographic characteristics, it opens doors for further exploration of the complex interplay between digital technology use, physical, psychological, and social development in this age group. Understanding the unique contexts of early digital

adoption within diverse demographics can inform the development of age-appropriate, responsible technology exposure guidelines for families and educators. This study serves as a springboard for deeper investigations into the evolving digital landscape of preschoolers in Dhaka City. As technology continues to permeate our lives, fostering responsible and enriching digital experiences for our youngest generation becomes increasingly crucial.

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