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The Use of Electronic Gadgets by the Preschool Children: An Exploration of Mothers' Knowledge and Perception

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ABSTRACT

The preschool children are increasingly exposed to the digital devices such as smartphones, tablets, television, and computers at an early age. This may lead to the health problems and technology addiction. This study aimed to assess the awareness and perceptions of mothers regarding the use of electronic gadgets by their children in a community in Pokhara Metropolitan City, Kaski, Nepal. A community-based descriptive cross-sectional study was conducted among 216 mothers of children aged 3-5 years through a purposive sampling technique. Data were collected through the face-to-face interviews, using the structured questionnaires and analyzed using SPSS version 16. Descriptive statistics and the chi-square test were applied to assess the associations between the selected variables and the level of awareness and perception. The results showed that most mothers (64.8%) had a poor level of awareness and 51.9% had a negative perception toward the children's use of electronic gadgets. A statistically significant association was observed between the level of awareness and the age of the child (p = 0.029) as well as the number of hours spent using the gadgets (p = 0.039). The findings of the study revealed that most mothers had poor awareness of the electronic gadget use among the preschool children, although nearly half of them perceived positively. The awareness programs and parental education are essential to promote the safe and effective gadget use among the preschool children.

KEYWORDS: Electronic gadgets, technology addition, awareness program, parental education

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INTRODUCTION

The rapid growth of digital technology has changed everyday life, and the preschool children are now exposed to the digital screens at an early age for the entertainment, learning, and behavior management, raising the growing concerns about the effect on child development

(Darkor, 2023). The early childhood, especially the preschool period, is a critical stage for the physical, cognitive, social, and emotional development. During this phase, the children acquire the essential skills, including the language development, attention regulation, motor coordination, and social interaction. The excessive or inappropriate exposure to the electronic gadgets during this developmental period may interfere these developmental processes and negative health, and developmental outcomes (Asl, 2019). A recent evidence indicates a marked increase in the screen time among the preschool-aged children over the past decade, largely driven by a widespread availability of digital devices and their increasing integration into the family routines (Waziry, 2019).

To address these concerns, several organizations have issued the guidelines for the safe use of electronic gadgets. For instance, the Indian Academy of Pediatrics recommends that no screen exposure for the children under two years and limited time to one hour per day for the children of two to five years (Gupta et al., 2022). Similarly, the American Academy of Pediatrics advises the restricted screen exposure for the preschoolers, emphasizing the high-quality content, parental co-viewing, and consistent screen-time limits (Hill et al., 2016). The World Health Organization (2019) emphasizes minimizing sedentary screen time and promoting active play, adequate sleep, and caregiver–child interaction to support optimal development in children under five years of age. These guidelines help keep the preschool children away from such gadgets.

The parents, particularly mothers as primary caregivers, play a pivotal role in shaping their children's screen use, influencing the duration, frequency, content, and context of electronic gadget use. While the electronic gadgets can provide many educational benefits under an adult supervision, the limited parental knowledge of guidelines can result in the excessive and unsupervised use (Bergert et al., 2020; Rashid et al., 2021). When used with an adult supervision, the age appropriate electronic gadgets can support early learning, language development, visual attention, and hand eye coordination among the young children (Lieberman et al., 2009). The excessive screen time has included the reduced physical activity, poor sleep quality, obesity, musculoskeletal discomfort, attention problems, behavioral issues, and delayed social skills (Asl, 2019; Twenge & Campbell, 2018). The factors such as the parental age, education, employment, and cultural context influence the children's technology use. In the low- and middle-income countries, a rapid digitalization with the limited guidance may increase the inappropriate screen exposure (Harverson et al., 2025; Radesky et al., 2016). Thus, the parental supervision is required for the use of electronic gadgets by the preschool children.

Although the studies on the screen use is growing globally, the evidence regarding the maternal awareness and perceptions in Nepal remains limited. Understanding the mothers' awareness is essential for identifying the gaps and designing the culturally appropriate educational interventions. Therefore, this study aims to assess the mothers' awareness and perceptions regarding the use of electronic gadgets among the preschool children in the study area to support the child health promotion and informed parental practices.

RESEARCH METHODS

This study employed a community-based descriptive cross-sectional design to explore the level of awareness and perception of the mothers on the use of electronic gadgets among the preschool children in Ward No. 26 of Pokhara Metropolitan City, Kaski District, Nepal.

The study population specifically comprises the mothers who had at least one child aged between 3 and 5 years.

The sample size determination was based on the prevalence data obtained from the previous studies on the maternal awareness regarding the technology addiction in the preschool children, which reported a prevalence of 17.3%. Using Cochran's formula ($n = Z^2pq/d^2$), with a confidence level of 95% ($Z = 1.96$), prevalence ($p = 0.17$), and allowable error ($d = 0.05$) (Mohamed Hassan et al., 2021), the calculated sample size was 216 mothers. A non-probability purposive sampling technique was employed to recruit the participants who met the inclusion criteria. The inclusion criteria for the study were the mothers who had at least one preschool-aged child between 3 and 5 years, were willing to participate, provided informed consent, and were available during the data collection period. The exclusion criteria included the mothers with serious mental or physical conditions that could hinder communication, ensuring that the participants were capable of providing the accurate responses during the interviews.

A structured interview schedule was used as the research instrument for data collection. The instrument comprised three sections. The first section collected the socio-demographic data and child-related information, including the maternal age, education, occupation, ethnicity, family type, family income, and child characteristics such as the age, sex, birth order, and number of children. It also gathered the information on the child's interaction with the electronic gadgets, including the types of devices used, the age at the first exposure, frequency, duration, purpose of use, and type of programs viewed. The second section assessed the mothers' awareness regarding the electronic gadgets through 49 items, covering an understanding of the gadget types and meanings (7 items), recommended the timing and distance for the use (3 items), benefits and negative effects (25 items), and preventive measures to limit the exposure (14 items). The third section explored the mothers' perception through 14 statements measured on a 5-point Likert scale, allowing for a quantitative evaluation of the attitudes and beliefs regarding the electronic gadget usage.

The content and face validity were verified by five experts, including two nursing professors and three pediatricians, and their recommendations were incorporated into the final tool. The instrument was initially developed in English, translated into Nepali for the participant comprehension, and back translated to English to ensure an accuracy. The reliability of the results was determined using Cronbach's alpha, which yielded a value of 0.85, indicating a strong internal consistency.

The data collection was conducted through the face-to-face interviews with the mothers after an ethical approval from the Institutional Review Committee (Ref. No. 178/2081/82) of Pokhara University and a formal permission from the concerned authorities of Pokhara Metropolitan City were 0. Each participant was fully informed about the study objectives, procedures, and their rights. The written informed consent was obtained before the interviews. The privacy and confidentiality were strictly maintained, with the participants assigned the unique codes and personal identifiers excluded from the dataset. Each interview lasted 15–20 minutes, and an average of 15–20 interviews were conducted daily, completing the data collection within three weeks, from 1st June to 21st June 2025.

The data management and analysis were conducted systematically. The collected data was edited, coded, entered Epidata version 3.1, and then exported to SPSS version 16 for statistical analysis. Descriptive statistics, including frequency,

percentage, mean, and standard deviation, were used to summarize the sociodemographic variables, levels of awareness, and perception scores. The awareness levels were categorized based on Bloom's cutoff points, with the scores ≥80% considered "good," 60–79% "moderate," and <60% "poor." For an association analysis, the participants scoring above the mean were classified as having 'good' awareness, whereas those scoring at or below the mean were classified as having 'poor' awareness. The mothers' perceptions regarding the electronic devices were analyzed via the mean scores derived from the 5-point Likert scale, categorizing the perceptions as positive if the score was equal to or above the mean and negative if it was below the mean. Inferential statistics, particularly the chi-square test, were used to examine the associations between the levels of awareness and selected sociodemographic variables, providing the insights into the factors influencing the maternal knowledge and attitudes.

RESULTS AND DISCUSSION

Results

This section comprises of the collected data, which are presented in the forms of tables and figures. They include the demographic information of the respondents and the information about the use of electronic gadgets by the preschool children.

Table 1

Sociodemographic Information of Respondents

Variables	Age (in Years)	Frequency (f)	Percentage (%)
Less than 20		05	2.3
21-25		67	31
26-30		83	38.4
31-35		52	24.1
36 above		09	4.2
Mean±SD:27.98±4.50(Min:20:Max:40)			
Ethnicity			
Brahmin		72	33.3
Chhetri		62	28.7
JanaJati		51	23.6
Dalit		31	14.4
Religion			
Hindu		186	86.1
Buddhist		26	12.0
Muslim		04	1.9
Educational level			
Basic education (1-8)		102	47.2
Secondary education (9-12)		96	44.4
Higher education (13 and above)		18	8.4
Occupation of mothers			
Homemaker		105	48.6
Private services		44	20.4
Government Services		17	7.9
Health workers		15	6.9
Labor		02	0.9
Business		29	13.4
Agriculture		04	1.9
Types of family			
Nuclear		155	71.8
Joint		60	27.7
Extended		01	0.5
Family Income (Rs/ month)		105	48.6
>30000			
30001-50000		78	36.1
50001-70000		11	5.1
70000 above		22	10.2
No of Children			
1		123	56.9
2		77	35.7
3		14	6.5
4		02	0.9
Age of the child			
3		98	45.4
4		55	25.4
5		63	29.2
Sex of the child			
Male		123	56.9
Female		93	43.1
Child order			
1st		141	65.3
2nd		61	28.2
3rd		12	5.6
4th		02	0.9

All the participants were aware of the mobile phones and television, and more than half (60.6%) knew about the computers. All the children used the gadgets, with most 91.7% using their

mother's device. The majority (84.7%) began using the gadgets between 1 to 2 years of age. The mobile phone was the most common device, 45.4%, used mainly for entertainment, 88.9% and watching videos/pictures (90.3%). Most children (80.6%) were allowed less than one hour of daily use, and the gadget use was common in the morning 44% (see Table 2).

Table 2

Information Related to Electronic Gadgets (n=216)

Variables	Frequency	Percentage
Types of gadgets known*		
Mobile phones	216	100
Television	216	100
Tablet	75	34.7
iPad	72	33.3
Computer	131	60.6
Child use a gadget		
Yes	216	100
Whose device is used		
Mothers	198	91.7
Fathers	18	8.3
Child age for using gadgets		
1-2 years	183	84.7
3-5 years	33	15.3
Most commonly used electronic gadget		
Mobile phone	98	45.3
Television	85	39.4
Computers	33	15.3
Purpose of using electronic gadgets		
Study	24	11.1
Entertainment	192	88.9
Common program Used		
Watching pictures/videos	195	90.3
Games	21	9.7
Daily screen time for preschoolers		
Less than 1hour	174	80.6
1-2 hour	42	19.4
No of hours child spends on gadgets		
Less than 1 hour	06	2.8
More than 1 hours	210	97.2
Time of Use		
Morning	95	44.0
Night	79	36.6
After school	42	19.4

***-**Multiple response question

The findings indicate that the two-thirds (64.8%) of the respondents had a poor level of awareness of electronic gadgets. While 30.6% had a moderate level of awareness only 4.6% of the respondents demonstrated a high awareness (see Table 3).

Table 3

Distributions of Respondents according to the Level of Awareness (n=216)

Level of Awareness	Frequency (f)	Percentage (%)
Good	10	4.6
Moderate	66	30.6
Poor	140	64.8

The highest mean percentage score was observed for the meaning and types of electronic gadgets, 70%. The lowest percentage was for the timing and distance, 40.3%. The awareness regarding the preventive measures was relatively good at 60%, and the benefits and negative effects had a moderate score, of 56.5%. The overall mean percentage score was 57.14%, with a mean score of 28 (SD ± 4.59) out of a maximum of 49 (see Table 4).

Almost half of the mothers (48.1%) had the positive perceptions, whereas 51.9% had the negative perceptions regarding the electronic gadgets (see Figure 1).

Figure 1

Level of Perception of Mothers Regarding the Use of Electronic Gadgets

Table 4

Aspects-Wise Mean Awareness Score for Electronic Gadgets (n=216)

Aspects	Maximum Score	Mean Score ±SD	Mean%
Meaning and types	7	4.9±0.90	70
Timing and distance	3	1.21±0.49	40.3
Benefits and Negative Effects	25	14.14±4.37	56.5
Preventive measures	14	8.4±0.76	60
Overall Awareness score	**49**	**28±4.59**	**57.14%**

The associations between the level of awareness and various selected variables. The significant associations were found between the level of awareness and the age of the child and the number of hours spent (p=0.029 and p=0.039), respectively. However, no significant associations were observed with other variables, such as the age, religion, educational status, occupation, family income, sex, or child order.

Discussion

The present study was conducted to assess the awareness and perception of mothers regarding the use of electronic gadgets among the preschool-aged children in a community of Pokhara Metropolitan City. The study revealed that out of 216 respondents interviewed, nearly two-thirds (64.8%) of the respondents had a poor level of awareness, less than one-third (30.6 %) of the respondents had a moderate level of awareness and 4.6% had a good awareness regarding the electronic gadgets. The maximum score was 49 with the mean score of 28. Whereas, almost half of the mothers (48.1%) had a positive perception, 51.9 % had a negative perception.

The result of the present study was supported by the study conducted in Nasr City, east of Cairo, Egypt, 60.2 % of the respondents had a poor awareness regarding the electronic gadgets (Abdallah Mostafa et al., 2024). Another study conducted at three sport clubs Youth Center, Egyptian Olympic Club, showed that the mothers' awareness on the use of technological devices among their young children, where the majority of mothers (93%) were not aware compared to only 7% of them who were partially aware of using the electronic devices (Waziry, 2019). This finding was contradictory with the study conducted at three nursery schools at Benha City, which revealed that 78.3% of the studied mother's had the average total knowledge score regarding the technology addiction for the preschool children, while 17.0% of them had the good total knowledge score and 4.7% of them had poor total knowledge score about the technology addiction for the preschool children (Mohamed Hassan et al., 2021).

A study conducted at India among 134 preschool children parents showed that the majority of the parents were aware of the adverse effects of the increasing screen time and want to establish the healthy screen time behaviors (Shirley & Kumar, 2019). Another study showed that 49% of preschoolers own their own gadget, and 90% of them utilize the electronic devices. More than half of parents are unaware of the rules on using technology. Just 29% of children adhere to the guidelines about the amount of time they should spend using electronics, despite the fact that 92% of parents think that this can lead to the health issues for their kids. Furthermore, more than 20 percent of parents believe that the gadgets are essential to their child's healthy growth. The parents' level of awareness about the preschoolers' usage of technology is minimal (Shirley & Kumar, 2019). Similarly, the findings of

the study are consistent with the study conducted that more than 50% of parents are not aware of the recommendations about the use of gadgets. 78.3% of the studied mother's had the average total knowledge score regarding technology addiction for preschool children, while 17.0% of them had good total knowledge score and 4.7% of them had the poor total knowledge score on the technology addiction for the preschool children (Mohamed Hassan et al., 2021).

The present study revealed that nearly half (48.1%) mothers had a positive perception where 51.9% had a negative perception regarding the electronic gadgets, which is supported by the study findings conducted at Ain Shams University-Cairo-Egypt. This study showed that 54% of the studied mothers had a negative level of perception among the mothers on the use of electronic gadgets (Abdallah Mostafa et al., 2024). Similarly, another study conducted at Benha University showed that 71% mothers had a negative perception only 29% had a positive perception on the use of electronic gadgets (Mohamed Hassan et al., 2021).

The present study shows a significant association between the age of child, number of hours spent on the gadgets and the level of awareness regarding the electronic gadgets (p-value=0.029 and p-value=0.039), which was compared to the study conducted in Alexendria University, Egypt, which revealed that there was an association between the respondents' child number, qualification of mother, and occupation of mother with the level of knowledge (Waziry, 2019). The difference in association can be due to the difference in the sample size and research area.

The results can serve as a valuable guide for developing and implementing the appropriate strategies aimed at enhancing the knowledge and perceptions of parents on the use of electronic devices among the preschool children. The outcomes of this study may provide a baseline evidence for the future researchers interested in exploring the influence of electronic devices. This study can also support the further investigations on the interventions to promote the safe and appropriate gadget use among children. The findings of the study can be helpful for the concerned authorities to develop and implement the necessary strategies required to increase the knowledge and perception level on the use of electronic devices. The findings can be utilized as a reference material to plan and organize the awareness programs during the community field visits.

This study suggests that the health education and training programs should be conducted to improve the mothers' awareness of the harmful effects for using the gadgets excessively. The mothers need to be encouraged to engage their children in the real-world activities such as reading, sports, and social interactions. The media and community-based programs should emphasize the healthy gadget use and the negative impacts of prolonged screen time. The future studies with the larger samples and diverse settings are also recommended for the researchers.

CONCLUSION

To conclude, the findings of the study revealed that nearly two-thirds of the respondents had a poor level of awareness of electronic devices used by their children. However, almost half of the mothers had positive perceptions of electronic devices. An association was found between the demographic variables (age of child and number of hours spent) and the level of knowledge among the mothers. The appropriate health education and awareness programs related to the electronic devices are necessary to increase the level of knowledge among the parents. The findings of this study should be interpreted with a caution due to certain limitations. First, the study was confined

to a specific geographical area; therefore, the results cannot be generalized to a wider population. Second, a nonprobability purposive sampling technique was employed, which may limit the representativeness of the sample. Finally, the study included only those parents who were available at the time of data collection, which may have introduced the selection bias.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

***AR**: Conceptualization, research design, literature search, data collection, data analysis, data interpretation, manuscript drafting, manuscript review, final approval of the manuscript, and accountability for all aspects of the work.* ***SL:** Conceptualization, research design, literature search, data analysis, data interpretation, manuscript drafting, manuscript review, final approval of the manuscript, accountability for all aspects of the work, and corresponding author responsibilities.*

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