

Digital Media Use and Health-Related Behaviors among Preschoolers In Governmental and Private Kindergartens: A Comparative Study

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ABSTRACT

The aims of this study was to assess of preschoolers' digital media use and activity in both governmental and private kindergartens, in addition, to identify preschoolers' health-related behaviors regarding digital media use. A comparative study design was used in this research during the period of 3 January 2019 to 13 April 2019. The study was conducted in the governmental and private kindergartens (KGs) in AL-Hillah city in Iraq. The total number of participants was (N=174) including parents and their children who aged (3-6 years old). The sample was selected by using convenience sampling approach. The data was collected by using an adapted and modify questionnaire focuses on preschooler health-related behavior and analyzed electronically by using SPSS program. the majority of participants (95%) have TV/DVD and (93%) have a touchscreen devices at home; however, touchscreen devices are used more than TV/DVD as shown in the results. More than 40% of the preschoolers in both KGs used digital media for longer than the recommended time and this was significantly correlated with time consumed by the parents on digital media. About 73% of preschoolers in the governmental KGs exhibit poor behaviors (such as hostile aggressive, anxiety and hyperactivity behaviors).

Keywords: digital media use, digital technology, preschoolers' behaviors

Introduction

Digital media is defined as products and services that come from the media, entertainment and information industry and its subsectors. It includes digital platforms (e.g. websites and applications), digitized content (e.g. text, audio, video, and images) and services (e.g. information, entertainment, and communication) that can be accessed and consumed through different digital device ¹. Digital media is just as other facilities provided that have pros and cons, especially when used by younger children. The younger children grow up in media-rich houses with the internet service and digital technologies, and this could have both positive and negative impact on many aspects of their development depending on the contents to which they are exposed ^{2,3}.

The positive cognitive impact such as the development of fine motor skills in children and visual intellect talents. Furthermore, improve learning, alphabetic and reading abilities in addition to the enhancement of early language and mathematical acquaintance, these are all examples of the positive academic impact. Conversely, digital media influences negatively on the child physical, psychological and social wellbeing, for instance, decreases physical activity, increases the risk of obesity and musculoskeletal problems. As well as, the danger of developing addiction disorder, hostile-aggressive, depression, and violence risk behavior. Moreover, the child prefers to involve in a fantasy world rather than the real world. Finally, they tend to have unsocial behavior such as spending less time with family, limited communication and interaction with other people ⁴. American academic of Pediatrics (AAP) set a series of policy statements concerning the amount of time that children and teenagers spend with digital media As well as the contents of these media. These statements come after the adverse effects of digital technologies, such as violence, unaccepted sexual behaviors, substance use, and obesity, besides media use in early childhood ⁵.

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Methodology

A comparative study design used to apply quantitative research during the period of 3 January 2019 to 13 April 2019. The study conducted in Al-Hillah city, at governmental (GOV) ($n=3$) and private ($n=5$) kindergartens. The total participants were ($n=174$) parents and their (3-6 years old) children selected as 20% from each KG, by using convenience non-probability sampling approach. The questionnaire was constructed and developed as a tool for data collection, and it includes three parts; the first part was sociodemographic data of children and their parents. Second part comprised of several items concerning digital media uses among children and parents. The third part was adopted and modified from the Preschool Behavior Questionnaire ⁶ and Strengths and Difficulties Questionnaire ⁷, which focused on preschooler health-related behavioral. The scale consists of 25 items divided into five sub-scale (prosocial behaviors sub-scale 6 items, anxious-fearful behaviors sub-scale 6 items, hyperactive-distractible

behaviors sub-scale 5 items and hostile aggressive behaviors sub-scale 8 items. The items of pre-school health-related behavior rated based on a 3-level Likert scale, which was determined according to the mean of items' scores to good behavior (1 - 1.66), poor behavior (1.67 - 2.33) and very poor behavior (2.34 - 3).

Results and Discussion

Distributions of total study sample at governmental and private KGs according to socio-demographical variables: Table (1) illustrates that most of the study sample (76.4%) were from governmental kindergarten, the majority of preschoolers in both KGs were females and in five years old. The higher percent of preschoolers' parents at governmental KG (33%) have primary educational degree, while most parents of preschooler at private (70%) have diploma and above degree. (19.5%) families that used governmental KG suffer from insufficient income, contrariwise of families who used private KG (22%) of them have sufficient and more income.

Table 1: Distributions of total study sample at governmental and private KGs according to socio-demographical variables and preschooler health related behavior

Variables	Government		Private	
	N=133		N=41	
Kindergartens	76.4%		23.6%	
Child age	Frequency	Percent	Frequency	Percent
3	0	0	4	9.8
4	34	25.6	10	24.4
5	81	60.9	19	46.3
6	18	13.5	8	19.5
child gender	Frequency	Percent	Frequency	Percent
Male	63	47.4	17	41.5
Female	70	52.6	24	58.5
Father's education attainment	Frequency	Percent	Frequency	Percent
Does not read and write	8	6.0	0	0
Read and write	12	9.0	0	0
Primary School	44	33.1	3	7.3
Intermediate and secondary	39	29.3	8	19.5
Diploma and above	30	22.6	30	73.2
Mother's education attainment	Frequency	Percent	Frequency	Percent
Does not read and write	7	5.3	0	0
Read and write	14	10.5	0	0
Primary School	53	39.8	0	0
Intermediate and secondary	31	23.3	9	22.0
Diploma and above	28	21.1	32	78.0

Conted...

Family income	Frequency	Percent	Frequency	Percent
Insufficient	26	19.5	0	0
Sufficient to some extent	99	74.4	32	78.0
Sufficient and more	8	6.0	9	22.0
Father occupation	Frequency	Percent	Frequency	Percent
Not working	16	12.0	0	0
working	117	88.0	41	100.0
Mother occupation	Frequency	Percent	Frequency	Percent
Not working	112	84.2	8	19.5
working	21	15.8	33	80.5
preschool health-related behaviors	Government		Private	
Good behaviors (1 - 1.66)	24.1%		56.1%	
Poor behaviors (1.67 - 2.33)	72.9%		43.9%	
Very poor behaviors (2.34 – 3)	3.0%		0.0%	

Digital media use and access: Figure (1) demonstrate that (95%) of the families in study sample have TV/DVD in their homes while touchscreen (smartphone/tab) consider the second higher percentage (93%) of homes' devices in both KGs. Touchscreen device used more than TV/DVD as the result shown.

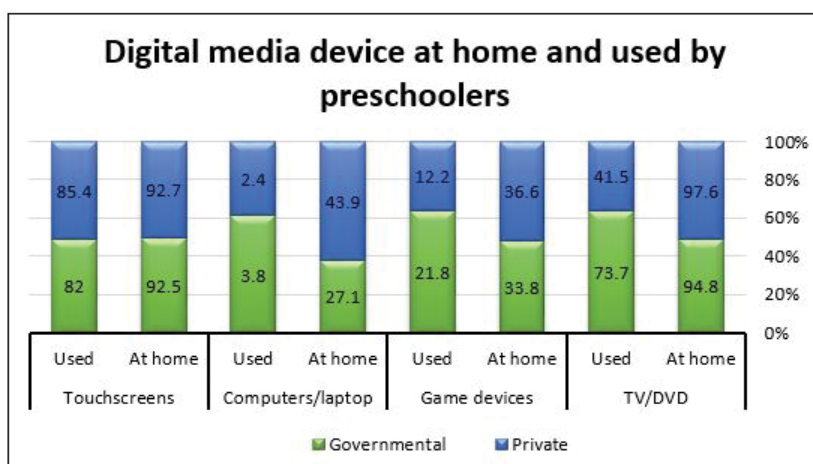


Figure 1: Demonstrate digital media devices at home and used by preschoolers at both governmental and private KG.

Table (2) show that Parents used digital media more than (3) hours a day in both KGs, particularly fathers (32%) of them used the DT (4) hours and more, (26 %) of mothers used DT (2-3) hours a day. In contrast preschoolers in both KGs use media more than 2 hours a day based on the mean (governmental = 2.08, private = 2.34).

Table 2: Comparison between preschoolers and their parent at governmental and private KGs, according to the average time spent on digital media

Time-consuming on digital media	Government			Private		
	Child %	Father %	Mother %	Child %	Father %	Mother %
no usage	6.0	12.0	18.8	4.9	0	17.1
less than 1 hour a day	37.6	12.0	28.6	29.3	14.6	19.5
(1) hour a day	15.8	13.5	12.8	17.1	17.1	19.5
(2-3) hours a day	24.1	26.3	25.6	24.4	36.6	29.3
4 hours and above	16.5	36.1	14.3	24.4	31.7	14.6
Mean	2.08	2.62	1.88	2.34	2.85	2.05
Std. Deviation	1.235	1.390	1.365	1.277	1.038	1.341

Figure (2) Show that 49% of pre-school children in private KG spend extra time on digital media above the recommended time by (AAP), as compared with 40% those in governmental kindergarten.

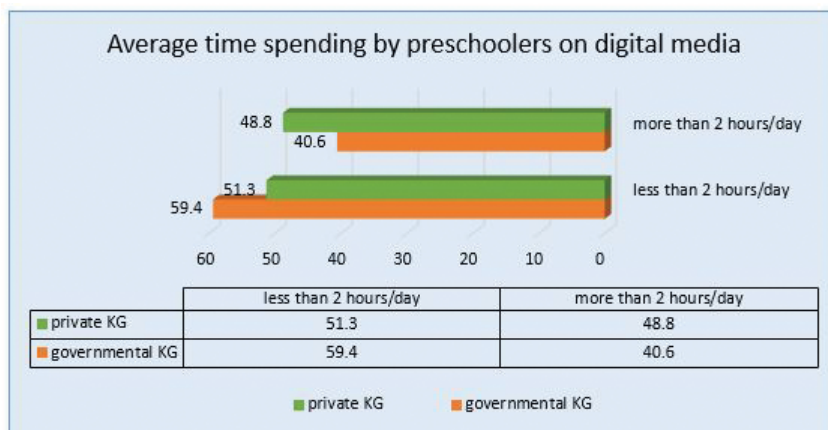


Figure 2: Show the average time spending by preschoolers on digital media

Preschooler’s health-related behaviors and digital media association: Table (1) shows that 73% of a preschooler in governmental KG exhibit poor behavior in comparison with 44% of a preschooler in private KG. In contrast, 56% of preschool children in private KG show, good behavior compared to 24% of children in governmental KG.

Table (3) shows that there is a significant correlation between parents’ digital media use and preschooler’ health-related behaviors at governmental kindergarten and non-significant correlation for those in private KG at ($p < 0.05$).

Table 3: Correlation between average parents’ screen time and preschoolers’ health-related behavior at governmental and private kindergartens

Governmental	Father screen time and child behaviors			Mother screen time and child behaviors		
	Value	DF	Sig.	Value	DF	Sig.
Pearson Chi-Square	32.130 ^b	8	.000	20.219 ^b	8	.010
Private	Father screen time and child behaviors			Mother screen time and child behaviors		
	Value	DF	Sig.	Value	DF	Sig.
Pearson Chi-Square	4.080 ^b	3	.253	4.239 ^b	4	.375

Table (4) show that there is a positive Significant correlations between preschoolers and their fathers digital media use ($r = 0.257, p = 0.002$) and their mothers digital media use ($r = 0.312, p = 0.000$).

Table 4: Correlation between average time consuming on digital media by a preschoolers and their parent in both kindergartens

Average time spent by the child on digital media	Correlation Coefficient	Average time spend by father	Average time spend by mother
		.257**	.312**
	Sig.	.001	.000
	N	174	174

Discussion

Comparison between preschoolers in GOV and private KGs regarding sociodemographic information: The study assesses the usage of DT by

preschoolers in governmental and private KGs and the impact of it on their health related behavior. Since this age group and younger are not being focused on in previous studies, especially in the researches related to DT and internet use according to Ofcom organization

review in the UK⁸. As well as the review of the European evidence base⁹, which show that only 7% of Europeans' research concerning preschooler digital media use and more research about the school age and adolescent, because older children able to answer researches' questions contrariwise the younger children. The result shows that the majority of participants age in both KG were 5 years old and this result are similar to Frate study¹⁰ and Genc study¹¹, as the age of 5 years was considered as the highest age of the selected children. The gender of preschoolers who participated in the study involved 53% of females in both KGs and the rest of 47% are males. These results supported by the study of Kabali in 2015¹² who reported that the majority of participants were females (51.9%) and (48.1) were males. While the survey of Frate et al., in (2019)¹⁰ have the opposite result, 49% of girls and 51% boys. Moreover, the non-experimental survey that was conducted on preschool children showed that the majority of children 60% were males and 40% were females¹¹.

Digital media use and access by preschoolers and their parent: AAP set a list of policies and guidelines to limit the usage of children to digital media, especially for younger children and encourage the families to use healthy media programs. They recommended media free for those under 2 years old and 1 hour/day with high-quality media programs for preschoolers accompanied by parents co-viewing to help their children understand what they see¹³. The results of the present study are show on figure (2) that 49% of preschoolers in private KG spend extra time on digital media above the recommended time, compared with 40% of those in governmental KG, and this result go back to the impact of the parents' media usage on their children as table (2, 4) show.

Figure (1) shows that there is (95%) of the families in the study sample have TV/DVD in their houses while the touchscreen (smartphone/tab) is considered the second higher percentage (93%) of houses devices at both governmental and private KGs. Regarding the preschoolers' digital devices use, touchscreen devices are used more than TV/DVD. These result parallel with the report of the common sense organization¹⁴ and the non-experimental survey of Genc¹¹. Furthermore, in the Report of a Kaiser Family Foundation, which show similar results regarding use of digital devices and time consuming except the touchscreen because this report conducted by Rideout in 2003¹⁵, when smartphones not popular at that time. Moreover, a longitudinal cohort

study between 2011 and 2017 in Leipzig, Germany, conducted by Poulain and his colleagues¹⁶, which resulted that there is a significant increase in using of mobile phones between 2011 and 2016.

Table (4) show positive Significant correlations between preschoolers and their fathers digital media use ($r = 0.257, p = 0.002$) and their mothers digital media use ($r = 0.312, p = 0.000$). Corresponding with Frate study¹⁰, which shows Significant correlations between both parent; mothers ($r = 0.238, p = 0.002$) and fathers ($r = 0.283, p = 0.003$) and their children, regarding daily TV viewing.

Digital media and preschoolers' health-related behavior: The interaction between parents and child has a great effect on the child's behaviors. Recently, these interactions were diminished especially with the development of digital technologies, because parents spend more time on digital media instead of contact and communication with their children^{17,18} Table (3) shows that there is a significant correlation between the time consumed by a parent on DT and preschoolers' health-related behaviors, particularly those at governmental KGs 73% of them exhibit poor health-related behavior in comparison with 44% of a preschooler in private KG as (table 1) shows. This result supported by McDaniel & Radesky study (18), which show that parental technological interruptions 'technofence' have a significant correlation with the problematic behaviors of their children. Another study conducted by Tran and his colleagues (19), which demonstrates that increase using of smartphones by both children and their parents have adversely effect on children's self-regulation and hostile behaviors, in addition to displacement of social reactions and everyday activities between caregivers and children with these mobile technologies.

Conclusion

After all, it can be concluded that there is a noticeable difference between preschoolers in governmental and private KGs regarding digital media use and health-related behaviors.

Source of Funding: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Pediatric Health Nursing, College of Nursing, University of Babylon, Iraq and all experiments were carried out in accordance with approved guidelines.

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