International Journal of Novel Research in Healthcare and Nursing Vol. 6, Issue 2, pp: (1143-1154), Month: May - August 2019, Available at: <u>www.noveltyjournals.com</u>

Mothers' Perception Regarding the Use of Information Communication Technology on School Age Children

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Abstract: In the 21st century, ICTs have become a part of everyday children's lives at home and school. Aim: The aim of the study was to assess the mothers' perception of the use of Information and Communication Technologies (ICTs) by school-age children (6-12 years. Sitting :Data were collected from mothers of school-age children at King Khalid University Hospital in Riyadh city. Methods and Sample: The descriptive correlation design was used in this study. It included 400 mothers of school-age children (6-12 years) of both sexes collected by a purposive nonrandom technique, excluded mothers of children with special needs, also who did not live with their children in the same house. Data collection tools: the instrument used to the data collection was questionnaire tilted (Parent Media Opinion Survey) with the reliability was reported as a Cronbach's alpha of .95 after modifications conducted. Results: Although traditional television remains the prefer type of ICTs among school age children, and less preferred device was DVD. Also, the majority of children plays electronic games. However, they do not watch programs or games before they allow their children are exposed to. In current study there is significant correlation between family has more ICTs their children start using devices at older age and duration of family has ICTs also longer. Conclusion : the study concluded that the mothers perception regarding use of ICTs on developmental outcomes are generally good. Recommendations: the study recommended that educate mothers regarding methods of control and supervision children use of ICTs. Educate mothers using ICT and how to promote their children ability to decide what type of games they should use and time management while playing.

Keywords: Information & Communication Technologies, Mothers of School age children, Perception.

I. INTRODUCTION

Information and communication technology (ICT) refers to electronic devices, components, applications, and systems used by individuals to interact with the digital world (Kerckaert, Vanderlinde, & van Braak, 2015). ICTs include computers, televisions, radios, video games, smartphones, tablets, iPads, and iPods. Internet access and satellite systems as well as network hardware and software and related services are also considered ICTs (Weinstein, 2010). Recently, ICTs have progressed from broadcast technologies to interactive technologies. Consumers now not only receive broadcasts, such as television, but also consume and create content, such as through smartphones, social media, and video games (O'Keeffe & Clarke-Pearson, 2011).

ICTs have been defined by the International Society for Technology in Education (ISTE, 2015) as "technologies used for opening, collecting, operating and demonstrating or communicating of information" (Kaufman, 2015). The World Health Organization (WHO; 2011) noted that telecommunication technologies based on Radio Frequency (RF) transmission, such as radio, television, and other devices, have been in widespread use for numerous decades. However, there are many new applications that involve reception of RF waves and the use of RF devices such as mobile phones. The attendant

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increased community exposure to RF fields has had effects on human health. In addition, the WHO emphasized the importance of this topic of research among children in the future because they are more sensitive to RF fields.

Significance of the Study

Childhood is a critical period and is considered a fundamental stage in an individual's healthy development. Normal development for school-age children involves them being eager to improve their social skills through social relations. However, cognitively they still lack skills to predict the outcomes of their behaviors and decisions, indicating that they need guidance on using ICTs to protect them from risks.

Lynch (2013) published a report about ICT use among school children in Saudi Arabia showing that 71% had a smartphone, 54% used a tablet, 82% connected to the internet by smartphone or a computer at home, 71% used social media, and 84% of mothers complained about their children's safety when using a smartphone (Lynch et al., 2013). Regarding the previously mentioned finding that a large percentage of children are using ICTs excessively, it is important to manage and supervise this use, a role primarily held by mothers in Arabic culture (Badri et al., 2017).

Based on previous studies, there is a need to explore mothers perceptions about their school-age children's use of ICTs. Mothers' perceptions affect their attitudes regarding guidance, supervision, content, context, and methods related to ICTs used by their children. The results and recommendations drawn from this study will help mothers and pediatric nurses to identify the current needs of children in a rapidly changing environment and their impact on growth and development to assist health promotion and disease prevention.

Aim of the Study

This research intended to assess mothers' perceptions regarding their school-age children's use of ICTs.

Research Objectives

The research objectives of this study were as follows:

• Assess mothers' perceptions regarding their school-age children's use of ICTs.

• Determine the relationships between mothers' demographic characteristics and their school-age children's use of ICTs.

• Determine the relationships between school-age children's demographic characteristics and their use of ICTs.

II. BODY OF ARTICLE

Research Design

A quantitative descriptive cross-sectional and correlational design was employed. This design allowed for the inclusion of multiple variables, which enhanced collection of sufficient data about the phenomenon of interest.

Setting:

The present study was conducted from pediatric outpatient clinics at King Khalid University Hospital in Riyadh, Saudi Arabia.

Sample

A purposive non-random sample of 400 mothers with school-age children was recruited for the current study, with criteria of Saudi and non-Saudi mothers, mothers with one or more children of school age (6 to 12 years of age) and from both sexes, were able to read and write, with child not using technological devices for treatment purposes or with special needs, with child living in the same house as the mother and mother accepting to participate in the study.

Data Collection Tools

The validity of the entire survey was checked by a panel of PhD-level experts in nursing such as an associate professor of community health nursing and an assistant professor of pediatric nursing. Based on this review, modifications were completed. The entire survey was translated into Arabic language and then back into English.

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Part 1: Socio-demographic characteristics of the mothers such as age, nationality, educational level, occupation, marital status, number of children, family income per month, and type of house.

Socio-demographic characteristics of the school age child as: age, sex, nationality, level of education, last academic achievement and the birth order.

Part II: General information about ICTs were assessed in this part such as for how long the family had ICTs at home, how old the child was when he/she first started using ICTs, and how many devices were in the home.

Part III: A unified version of the Parent Media Opinion Survey adopted by Funk, Brouwer, Curtiss, and McBroom (2009) was employed. Some modifications were made by the researcher after permission from the authors

The tool contains questions that address mothers' perceptions. The first eight questions are regarding mothers' perceptions of their children's use of ICTs including the following: whether they play electronic games, the types of games they play, the average time per day the children are allowed to use ICTs, types of ICTs their children prefer, factors affecting mothers' decision to allow children to use them in their daily routine, whether a child uses more than one media device at the same time, what mothers decide regarding new TV shows or games, and their opinions of screen time per day recommended for school-age children. Responses for this part were provided using a Likert Type scale with different options based on the type of question. Most questions in this part were checked according to model key answers and were classified into one of the following categories: always, often, sometimes, rarely, and never.

Pilot Study

A pilot study was carried out in June 2018 to test the clarity and applicability of the tools used and to estimate the time required for each interview. The researcher collected data using a semi-structured interview and was available to answer questions and clarify concerns of the mothers. The survey was piloted with 10 mothers who were excluded from the main analysis. The results obtained were helpful in making modifications to the study tools. Reliability of the entire survey was reported as a Cronbach's alpha of .95. Reliability of the mothers' perception subscale was reported as .84.

Data Collection Procedure

Data collection was carried out beginning in June 2018 over 4 months. The study was carried out 3 to 6 days/week in the morning until the desired number of participants was obtained. At the beginning, the researcher explained the study aim and provided an orientation to the study tool and its purpose, to develop a good relationship with the participant and gain his/her trust and cooperation. Simple words in the Arabic or English language were used to suit their level of understanding._Mothers were interviewed at pediatric outpatient clinics at King Khalid University Hospital while they were waiting to receive care._Each participant was interviewed and assessed (individually or as group containing from 2 to 4 mothers) according to their condition and their interest in participation using study tools.

Ethical Considerations

Approval to conduct the study was obtained from the Institutional Review Board (IRB) at King Khalid University Hospital. Each eligible mother was notified that her participation was voluntary, and that she had the right to withdraw from the study at any time without any effect on the care she would receive. Each eligible mother was also notified that there was no risk of harm from her participation as well as no benefits. Results from the current study would help enrich the body of nursing knowledge regarding this phenomenon and help health care providers and policy makers to provide required interventions to improve school-age children's health and outcomes.

Data Analysis

Data were entered and validated in SPSS version 21 (Statistical Package for Social Science). Descriptive statistics were used to answer the research questions. Tables are provided to explain and show results in terms of mean, standard deviation, frequency, and percentages. Pearson correlation analysis was used to examine the relationships between the study variables. Independent sample t-test was used to test mean differences.

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III. RESULTS

Demographic Characteristics of Mothers

Descriptive statistics showed that the mean age of the mothers was 35.5 and standard deviation 6.3 and 71.25% were aged 30 to 40 years old. Regarding nationality, 95% were Saudi and 5% were non-Saudi. As for marital status, 92% were married. Concerning educational background, 47% had a bachelor's degree. Regarding work status, 61% were working. Regarding number of children, more than half (58%) reported that they had from 1 to 3 children. In terms of family income, 43% had a monthly income of more than 10,001 Saudi Riyals. Further, 62% owned their homes. Demographic characteristics of the mothers who participated in the study are presented in Table 1.

Variable	Ν	%
Age		
20 to 30	97	24.25
30 to 40	285	71.25
40 to 50	18	4.5
Nationality		
Saudi	380	95
Non-Saudi	20	5
Marital status		
Married	368	92
Divorced	20	5
Widowed	12	3
Educational level		
Read and write	18	4.5
Primary	20	5
Intermediate	32	8
Secondary	88	22
Diploma	32	8
Bachelor's	188	47
Other	22	5.5
Occupation		
Working	244	61
Not working	156	39
Number of children		
1 to 3	232	58
4 to 6	140	35
7 or more	28	7
Family income		
Less than 5000	76	19
From 5001 to 10000	152	38
10001 or more	172	43
Type of house		
Privately owned	248	62
Rented	152	38

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Demographic Characteristics of the Children

Mothers who participated in this study provided information about their school-age children. The mean age of the children was 9 years (SD 2) and 51.25% were aged between 8 and 10 years old. Regarding nationality, 94.75% were Saudi. Regarding gender, 51% were male and 49% were female. In terms of educational level, 90% were in primary

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schools and 10% were in intermediate schools. As for academic performance, most (78%) showed excellent results. Regarding the birth order of the child, 47% were the first child in the family. Children's demographics are provided in Table 2.

Item	n	%
Age		
6 to 8	121	30.25
8 to 10	205	51.25
10 to 12	74	18.5
Nationality		
Saudi	379	94.75
Non-Saudi	21	5.25
Gender		
Male	204	51
Female	196	49
Level of education		
Primary	360	90
Intermediate	40	10
Academic performance		
Excellent	312	78
Very good	68	17
Good	16	4
Pass	4	1
Not pass	0	0
Birth order		
First	188	47
Second	56	14
Third	76	19
Other	80	20

Table 2: Demographic characteristics of school-age children whose mothers participated in the study (N=400)

First objective: assess mothers' perceptions regarding their school-age children's use of ICTs

Mothers' perceptions regarding the use of ICT devices by their school-age children was measured extensively in this study. Descriptive statistics were used to answer this research question. In total, 49% reported that they had owned devices for 3 years. Regarding how old the child was when he/she first interacted with ICTs, 34% of mothers revealed that their children started using ICT devices when they were 2 years old. In terms of how many devices they had at home, 49% reported having one device. Regarding whether children played electronic games, mothers reported that 99% of their children played these games. Regarding the type of game that children preferred to play, 47% reported that their children played games that involved driving cars. Mothers were asked about factors affecting their decision to allow their children to use ICT devices in their daily routine. Results showed that 43% of mothers said that it was their child's preference and 35% reported that they allowed their children to use the devices to keep them occupied. In addition, they were asked to provide their opinions regarding the recommended length of time that school-age children should use different ICTs per day. Overall, 64% reported that they felt the time was less than 2 hours. Regarding whether children used more than one device at the same time, 42% reported that they always did this. Data on mothers' perceptions regarding their school-age children's use of ICTs are presented in Table 3.

Table 3: Mothers'	Percentions Re	parding the Us	e of ICT Devices	Among Their Scl	hool-Age Childrei	(N=400)
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Item	n	%
How long has your family had ICTs in the home?		
Less than 1 year	24	6

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1 year	24	6
2 years	36	9
3 years	196	49
4 years or more	120	30
How old was your child when he/she first used ICT devices?		
Less than 1 year		
1 year old	84	21
2 years old	100	25
3 years old	136	34
4 years or older	72	18
	8	2
How many ICT devices do you have at home?		
One	196	49
Two	112	28
Three	76	19
4 or more	16	4
Does your child play electronic games?		
Yes	396	99
No	4	1
What type of games does your child play?		
Driving cars	188	47
Violent games	48	12
Cooking games	100	25
Other	64	16
Factors influencing mother's decisions to allow their children to		
use technology in her/his daily routine		
Child preference	172	43
Educational purposes	60	15
Increase relationship with friends	6	1.5
Keep the child occupied	140	35
Expose the child to technology	16	4
Social contact	6	1.5
From your point of view, what is the amount of ICT screen time		
per day that you think is recommended for children from 6 to		
12 years of age?		
No specific time	40	10
Less than 2 hours	256	64
2 to 5 hours	80	20
5 to 10 hours	8	2
10 to 15 hours	8	2
Not aware of any existing recommendations	8	2
Does your child use more than one device at the same time?		
Always	168	42
Often	80	20
Sometimes	92	23
Rarely	36	9
Never	24	6

Mothers' perceptions regarding their school-age children's use of ICTs was also measured in terms of their children's preferences to watch TV and DVDs, use computers and Tablets/iPads/iPods, play video games and PlayStation, and use smart phones and the internet.

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The most preferred devices in this study were as follows: 76% for TV, 75.5% for Internet access and use, 73.25% for Tablets/iPads/iPods, and 72% for smart phones. On the other hand, the least preferred devices among children were DVDs (13.25%).

Data on mothers' perceptions regarding their school-age children's preferences for ICT devices are presented in Table 4.

Item	Strongly Agree		Agree	Agree No		Neutral		Disagree		Strongly Disagree	
	n (%	6)	n (*	%)	n (*	%)	n ('	%)	n (%)	
TV	52	13	252	63	34	8.5	43	10.75	19	4.75	
DVD	12	3	41	10.25	118	29.5	106	26.3	123	31.1	
Computer	40	10	161	40.25	66	16.5	66	16.5	67	16.75	
Tablets, iPads,	137	34.25	156	39	35	8.75	30	7.5	42	10.5	
iPods											
Video games	108	27	126	31.5	38	9.5	52	13	76	19	
PlayStations											
Smart phones	124	31	164	41	28	7	26	6.5	58	14.5	
Internet access	150	37.5	152	38	25	6.25	24	6	49	12.25	
and use											

Table 4: Mothers' perceptions regarding their children's preference for ICT devices (N=400)

Mothers' perceptions about the duration per day the child used electronic devices were reported in terms of how many hours per day their children used ICTs for different tasks and games. In total, 36.5% of mothers revealed that their children did not use computers. Furthermore, 35.25% of mothers reported that their children did not use video games. Approximately 29.5% watched TV and films and 28.5% used tablets, iPads, iPods, or smart phones from 1 to 2 hours per day.

Electronic Device	≤1 ho	our	1 to 2	hours	rs 3 to 4 hours		$\geq 5 h$	ours	Don't use		Don't	
											know	7
	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
TV and DVDs	83	20.75	118	29.5	82	20.5	76	19	32	8	9	2.25
Tablets, iPads, iPods,	84	21	114	28.5	67	16.75	78	19.5	40	10	17	4.25
smart phones (games,												
chatting, school work,												
social networking, etc.)												
Computers (games, apps,	76	19	77	19.25	34	8.5	42	10.5	146	36.5	25	6.25
chatting, school work,												
social networking, etc.)												
Video games (play	63	15.75	62	15.5	44	11	80	20	141	35.25	10	2.5
different games and												
share with friends and												
siblings)												

Table 5: Mothers' perceptions regarding the average hours per day their children used ICT devices (N=400)

Regarding mothers' perceptions about their school-age children's use of ICTs, we asked the mothers what they did before deciding if their children would watch a TV show or play a new game.

Results showed that 44% reported that they never tried or played the game first before they allowed the child to play, 38% never played the entire game with their children, 37% never used the ratings provided on the game before they allowed the child to play, and 35% never used the ratings provided on the screen. Less than 9% always played the entire game before they allowed their children to watch, and 9% rarely watched the first couple of minutes to see if it was acceptable before allowing the child to watch.

Results of what mothers did before they decided if their children could watch a TV show or play a game are presented in Table 6.

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TV show/New video game	Always		Ofte	en	Sometin		Rarely		Never	
	n (*	%)	n ((%)	n (%	6)	n ((%)	n (%)
Watch the first couple of minutes to see	136	34	84	21	88	22	36	9	56	14
if it is acceptable.										
Watch it all with my child.	88	22	76	19	112	28	60	15	64	16
Watch it all before I allow my child to	88	22	68	17	84	21	60	15	100	25
watch.										
Use the ratings provided on the screen	72	18	60	15	64	16	64	16	140	35
Play the first couple of minutes to see if	76	19	72	18	84	21	60	15	108	27
it is acceptable.										
Play the entire game with my child.	52	13	40	10	80	20	76	19	152	38
Play the entire game before I allow my	36	9	44	11	68	17	76	19	176	44
child to play.										
Use the ratings provided on the game	72	18	56	14	64	16	60	15	148	37

Table 6: What mothers did before deciding if their children could watch a TV show or play a new game (N=400)

Second objective: Determine the relationship between mothers' demographic characteristics and their school-age children's use of ICTs.

Spearman correlation displayed that there was a significant correlation between mothers' education and the age at which the child first started using ICTs ($r = .13^*$, p = .01). The higher the mother's level of education, the younger the children started using ICT devices.

Marital status showed a small but significant correlation with the age at which children first started using ICTs ($r = .14^{**}$, p = .005). Married mothers were more likely to allow their children to use ICTs devices at a younger age.

Income showed a small but significant negative correlation with child academic achievement ($r = ..10^*$, p = .04). The higher the family income, the lower the level of academic achievement among the children. Income also showed a small but significant correlation with how long the family had ICT devices ($r = ..14^*$, p = ..02) and the age at which the child first started using ICT devices ($r = ..11^*$, p = ..02). Specifically, higher income families bought ICT devices earlier and allowed their children to use these devices at younger ages.

Results of correlation analysis of the mothers' demographics and use of ICTs among their school-age children are presented in Table 8.

	Age the child first	Child academic	How long the family
	started using ICTs	achievement	had ICTs devices
Mothers' education	r = .13*	-	-
	p = .01		
Marital status	r = .14**	-	-
	p = .005		
Income	r = .11*	r10*	r = .14*
	p = .02	p .04	p = .02

Fable 7. Connelation analysis of mothers	domographics and the use of IC're	among their school ago children
radie 7. Correlation analysis of mothers	uemographics and the use of IC IS	among their school-age children

 $\mathbf{r} = \mathbf{Correlation}$

P (significance level) as set as * < 0.05, ** < 0.01

Third objective: Determine the relationship between school-age children's demographic characteristics and their use of ICTs.

This objective included two parts. The first was to determine if there were correlations between children's demographics (continuous variables) and the use of ICTs. The second was to examine any differences between girls and boys in relation to academic achievement. First, there was a small but significant correlation between child age and the age at which the child first started using ICT devices ($r = .21^{**}$, p = .000), meaning that older children started using ICT devices at a later age. There was also a significant correlation between child grade and academic achievement ($r = .15^{**}$, p = .003), meaning that with higher school grades, academic achievement was better.

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How many devices the family had correlated significantly with the age at which the child first started using these devices $(r = .36^{**}, p = .000)$, and also with how long the family had ICT devices $(r = .20^{**}, p = .000)$, meaning that for families with more ICTs, their children started using devices at an older age and the duration of having ICTs in the family was also longer. Children who excessively used ICTs were more likely to have lower academic achievement than children who did not use ICTs $(r = -.11^*, p = .02)$. In addition, child academic achievement significantly correlated with factors affecting mothers' decisions for their children to use ICTs $(r = -.10^*, p = .04)$, meaning that among mothers who allowed their children to use ICTs, child academic achievement was lower. Results of correlations between the demographic characteristics of the children and the use of ICTs are presented in Table 9.

	Academic	Age first started	How long the family has
	achievement		had devices
Age	-	r = .21**	-
		p = .000	
Grade	r = .15**	-	-
	p = .003		
Excessive use of ICTs	r =11*	-	-
	p = .02		
How many devices family has	-	r = .36**	r = .20**
		p = .000	p = .000
Factors affecting mothers'	r =10*	-	-
decision for the child to use	p = .04		

Table 8: Correlations between demographic characteristics of the children and the use of ICTs.

r = Correlation

p (Significance level) was set as * < 0.05, ** < 0.01

For the second part, regarding whether there were any differences between boys and girls in relation to academic achievement, results of the chi square test showed that there was a significant difference between boys and girls ($\chi^2 = 632.1$, p = .000) indicating that girls had better academic achievement than boys.

IV. DISCUSSION

First objective achieved: Assess mothers' perceptions regarding their school-age children's use of ICTs

The results of the present study reflect mothers' perceptions of their school-age children's use of ICTs. Regarding the number of years the family had ICT devices, around half described that their children had devices for 3 years. Regarding the first time their children interacted with ICT devices, over one third started using them when they were 2 years old, and approximately half reported having one device at home as shown in Table 3. It appears that children growing up with ICTs showed them to be a major part of their daily lives such that there needs to be an emphasis on controlling and preventing the development of negative effects on health and developmental outcomes.

As shown in Table 3, the majority of mothers reported that their children played electronic games. Badri et al. (2016) also reported that most children played electronic games every day. As for the games that the children preferred to play, the most common types of games played by children in this study were described by their mothers as driving cars and cooking games. Meanwhile, Al-Muhanna et al. (2017) concluded that the most common games played among school children in their study were adventure and cooking games. In the present study, regarding factors affecting their decision to allow their children to play with ICT devices, over one third of mothers stated that it was their child's preference to play and that they wanted to keep their child occupied. Similarly, Genc (2014) noted that most mothers allowed their children to use ICTs because they wanted to play and have fun. In addition, Vittrup et al. (2014) stated that mothers used ICTs to keep their children occupied. It might be that responsibilities of mothers during their daily lives led them to keep their children also preferred to play ICTs and have fun.

In the current study, regarding mothers' opinions on the recommended time that school-age children should use ICTs each day, most reported less than two hours per day. This indicates that mothers living in current study had perceptions on this issue as shown in Table 3. This is contrary to the findings of Vittrup et al. (2014), which showed that mothers do not

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know about the recommended hours per day for children using ICTs. In the current study, concerning whether the child used more than one device at the same time during his/her play, more than one third of mothers reported that this was always the case. This agrees with the findings of Collins (2013), which showed that mothers stated that their children were interacting with ICTs and playing video games, listening to music, and watching videos at the same time. It might be the case that with new technologies, for example, children used smart phones for chatting with each other at the same time that they watched TV.

Concerning children's preferences for types of ICTs in this study, mothers reported that the most preferred devices by their children were TVs. This finding matched the results of Hanna (2016), which showed that a greater number of children preferred TV. It might be view TV present on every house and all family member in different age watch TV rather than other devices.

Regarding the average hours per day the children used all ICT devices, over one third of the mothers reported that their children did not use computers and video games. This matched with results of Aldhafeeri and Palaiologou (2016) who reported that one third of mothers noted their children did not use computers and video games. As shown in Table 5, more than one quarter of mothers reported that their children watched TV and films and used tablet devices and smart phones from 1 to 2 hours per day. This result coincided with that of Chahal et al. (2013) who reported that more than one quarter of children used different ICTs from 1 to 2 hours per day.

In the present study, the extensive exploration of mothers' perceptions regarding their school-age children's use of ICTs was extended to ask mothers what they did before deciding if their children should watch a TV show or play a new game. The results showed that more than one third reported that they never used the following methods: tried or played the game first before they allowed the child to play, played the entire game with their children, used the rating provided on the game before they allowed the child to play, and used the rating provided on the screen, as shown in Table 6. It might be that this clarifies that a greater number of mothers in this study did not have effective supervision of content before their children were exposed. Kostyrka-Allchorne et al. (2016) reported that the majority of mothers, before allowing their children to be exposed to ICTs, applied a rating of TV shows and games and used the rating presented on the games. In addition, in this study, a minority of mothers stated that they always played the entire game before they allowed their children to watch. This finding is in contrast to that of Kostyrka-Allchorne et al. (2016), who stated that mothers sometimes played/watched entire games/films with their child. Additionally, some mothers watched a TV show for the first couple of minutes before they allowed their children to watch. Allchorne et al. (2016), who reported that minimum number of participants watched TV for a few minutes before allowing their children to watch.

Second objective: Determine the relationship between mothers' demographic characteristics and their school-age children's use of ICTs.

There is a relationship between mothers' demographic characteristics and their school-age children's use of ICTs. There was a significant correlation between mothers' education and the age the child first started using ICTs as shown in Table 8. This is similar to the result of Kostyrka-Allchorn et al., (2016), who stated that highly educated mothers' children started using ICT devices at a younger age to keep them occupied. It could be that educated mothers are busier with work and responsibilities that leads them to providing their children with more devices to keep them occupied.

The current study reported a significant low correlation between marital status (married) and age the children first used ICTs, income and how long the family had ICT devices and the age when the child first used devices, as shown in Table 8. This might show that with higher income, families allowed their children to use devices at younger ages, which may lead to raising the risks of ICTs among high income children. This is in accordance with the finding of Li, M. K. (2015) who reported that the budget of elementary children's mothers was a factor in determining increased time and ICT usage. Regarding the level of income, a small but significant and negative correlation was shown with child academic achievement. This clearly shows that children of high-income families have more devices that leads to increasing time of exposure to ICTs that impacts their academic performance as shown in Table 8. This was in accordance with the result of Little (2014) who showed that income was significantly negatively correlated with cumulative grade averages. On the other hand, it is in contrast to the findings of Hair et al. (2015) who showed that lower income was associated with low school achievement.

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Third objective: Determine the relationship between school-age children's demographic characteristics and their use of ICTs.

Regarding the relationship between children's demographic characteristics and the use of ICTs, correlation results showed that there was a small but significant correlation between child age and the age the child first started using ICT devices, as shown in Table 9. This finding is in agreement with that of Kostyrka-Allchorne et al. (2016) who found that child characteristics (i.e., age and gender) were significantly associated with time spent using devices (p < 0.001). In addition, in the present study, there was a small but significant correlation between child grade and academic achievement of older children and higher school grade that increases a long time of starting ICTs use and their academic achievement as shown in Table 9. Similar findings were shown by Kostyrka-Allchorne et al. (2016) who described a significant association between grade and school performance.

There was a significant correlation between the age the child first started using ICTs and the number of ICTs devices in the family. In addition, regarding the duration the family used ICT devices, as shown in Table 9, a higher number of devices in the family led to an increase in their children using ICTs at an early age. Thus, children who excessively used ICTs were more likely to have lower academic achievement compared to children who did not use ICTs, as shown in Table 9. This finding is in agreement with that of Rashid and Asghar (2016) who stated that children with heavier exposure to ICTs were negatively impacted in terms of their school performance. In addition, child academic achievement significantly and negatively correlated with factors affecting mothers' decisions for their children to use ICTs, as shown in Table 9. This was similar to the result of Badri et al. (2017) who showed that the decision for using ICTs are negative significant relation with school performance.

Regarding the second part, differences between genders in relation to academic achievement, the results of this study showed that there was a statistical difference between female and male means showing that females had better academic achievement than males, as shown in Table 9. This is in accordance with findings by Petersen (2018) who found that female students performed slightly better than males in terms of school performance.

V. CONCLUSION

This study concluded that mothers' reported their perceptions about the daily recommended time for the use of ICTs for school-age children. In regard to their children's media preference, more than two thirds reported that their children preferred TV, and more than a quarter stated that their children used video games and TV from 1 to 2 hours per day. However, among highly educated mothers and high income families, children started using ICTs at a younger age. If mother's allowing their children's to use ICTs their academic achievement more likely to decreased.

VI. RECOMMENDATIONS

(1) Use of a qualitative design in which the children themselves explain how they view playing ICTs would provide better understanding of the phenomenon. (2) Educate mothers about using ICTs and how to promote their children's ability to decide what types of games they should use and time management while playing.(3) Educate mothers about how to set rules for using ICTs for their children and to utilize strategies for rewards and punishment if the children violate the rules. (4) Mandate the orientation of students to the concepts of information and communication technology early in primary education with emphasis on positive and negative effects on children's academic achievement. (5) These findings suggest several courses of action in terms of applying them in primary healthcare settings, growth and development clinics, school health visits to assess media history frequently and become a part of taken health history. (6) An important practical implication is to work collaboratively with parent-teacher associations to encourage guidance in limiting or monitoring age-appropriate ICT duration of use.

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