

Mothers' Awareness Regarding the Use of Technological Devices by their Preschool Children

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Abstract: Today, children are growing up exposed to technology. It is known that the use of technological devices such as television, mobiles and computers become increasingly widespread. Preschool children's use of such technological devices could be beneficial while the overuse of them constitute health risks for children. So, it is important for the mothers to monitor the time, frequency, and content viewed while using technological devices by their children and to encourage activities that enhance children's overall physical and mental well-being. **Aim:** The aim of this study was to assess mothers' awareness regarding the use of technological devices by their preschool children. **Tools:** One tool was used to collect the necessary data, namely "Mothers' Awareness regarding the Use of technological devices by their preschool Children Structured Interview Schedule". **Setting:** The study was conducted at three sport clubs representing different social classes in Alexandria. **Results:** All children used mobiles and T.V while computer was used by less than half of children. The majority of children exceeded the allowed daily hours of using technological devices. Two thirds of mothers (67%) were not aware of using mobile or tablet among their children and 33% of mothers were partially aware of using them. Furthermore, 87% of mothers were not aware of using computer while, only 13% of them were partially aware of its use. More than half of mothers (58%) were not aware of using TV compared to 42% who were partially aware. **Conclusion:** This study showed lacking of mothers' awareness concerning 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 technological devices. **Recommendation:** Special workshops for mothers should be organized in Nurseries and day care centers to raise their awareness about recent guidelines that should be followed with young children in using technological devices as well as the risk associated with the overuse of such devices including physical, psychological behavioral and social negative effects. Mass media should raise mothers awareness regarding the importance of joining their young children on other activities away from electronic screens such as reading, sports and real world social pursuits and emphasize the negative impact of excessive screen use.

Keywords: Technological devices, preschool children, negative effects, mothers awareness.

1. INTRODUCTION

Digital technology's integration into the daily lives of children and its influence on their cognitive, emotional, and social development continues to increase day by day. Technology offers many opportunities for children to play, explore, and learn⁽¹⁾. Most children now have access to technological devices at home such as Computers, mobiles or TV's⁽²⁾.

The Department of Health (2014), Australia, has recently developed guidelines relating to sedentary behaviors, recommending limiting screen time to promote health throughout the lifespan. So, intervening early in a children life is the key to ensure they have limited sedentary screen time and, thus, reduce all the risk factors associated with the use of technological devices⁽³⁾. The recent guidelines recommended limited children's daily screen time to no more than hour a day for children aged from 2 -5 years and no more than two hours a day for children over five. Preschool age children are not yet mature enough to distinguish fantasy from reality. They are developmentally thinking concretely. Moreover, they

need to be engaged in activities that are important for their development including physical activities, creative play, playing with toys and reading books. The time they spend playing games on computers or mobiles and watching TV should be balanced with the other activities they do ⁽⁴⁻⁶⁾.

Technological devices have many benefits for the development of young children in different aspects .they can improve hand-eye coordination, language skills through reading eBooks. They also promote the children school readiness and cognitive developments e.g: typing letters or words on the screen using word processing software. They also enhance children's dynamic spatial and problem solving skills .Throughout these devices children can expand their horizons and develop talents. Using such devices also can enhance their social interaction ⁽⁷⁾. Moreover, Computer or mobile games have positive effects on the development of specific set of visual intelligence, image representation and visual attention skills. Moreover, using such technological devices develop children skills and motivation in academic areas such as math, science, language, arts and writing. Preschoolers also can gain some entertainment values available for their ages e.g: drawing pictures with simple drawing programs ^(8,9).

Internet makes learning more fun for children in this age. Software and websites that foster creativity can be good and suitable for preschoolers. Some games provide opportunities for these young children to express their ideas and feelings and some games give children simple choices and help them to make creative decisions e.g. choosing a character or finding a background for a picture ⁽¹⁰⁾.

On the other hand, the overuse of technology devices has negative effects on children's physical, social, cognitive and psychological development and health. Studies had shown such modern technologies as to constitute health risks for children. It seems that children's inappropriate use of such technological devices in terms of content, duration, frequency, and the posture they adopt while using them pose a variety of health risks, including developmental problems, musculoskeletal problems, physical inactivity, obesity, and inadequate sleep quality^(11,12).

Moreover, the overuse of technology causes children to use their time inefficiently. Concern should also be paid to the cognitive and emotional effects that these technologies have on the development of children .Watching an excessive amount of television and videos by children has been reported to significantly influence language development and behavioral disturbances. Spending too much time on the computer from an early age can negatively affect academic success due to the low concentration, undeveloped language skills, lack of attention, creativity, and imagination that were seen in children as a result of excess computer use. A study published in the Journal of American Medical Association shows that children with excessive use of technology have an increased risk of showing symptoms of ADHD ⁽¹³⁾. Furthermore, excessive use of such devices hinders children's ability to develop inter personal skills ⁽¹⁴⁾. Having such devices in children's bedrooms and using them in solitude robbing children of time for other social activities and interfering with their development and maintenance of friendships. It also affects children's family relationships ⁽⁶⁾. Studies have linked too much technological devices use to an increased risk of obesity^(15,16)

Children who make excessive use of social media or who sleep with mobile devices in their bedrooms are at increased risk of experiencing sleep disturbances. Also the use of electronic devices during the daytime can affect sleep quality ⁽¹⁷⁾. Physical problems like hand injuries, eye strain, back and wrist problems are also linked to overuse of technological devices ⁽¹⁸⁾.

Playing violent games can also increase children's aggressive behaviors and hostility and desensitize them to violence. Easy access to illegal, violent, and sexual content, communication with dangerous people, and excessive dependence on games also constitute significant risks. Additionally, spending much times on such devices displace other activities that have more developmental value for the child such as participating in sports and social activities. Increased use of such devices may be linked to increase child's loneliness and depression. Moreover, some children may have difficulty understanding the boundaries between real and artificial life when they engaged in simulation games. Younger children are less able to discriminate between fantasy and reality. Children can also be negatively affected by scary or sexualized images as well as advertising ^(19,20).

Mothers have important responsibilities toward their children in using technological devices. First of all, limiting their children's daily screen time including TV, mobile, DVD and computer. They should also encourage their children to engage in a variety of activities to entertain and stimulate their thinking and creativity so; they do not look to the screen so much. Active physical play as well as any activities that involve relationships and interactions with real people should

also be encouraged. Children's bedrooms should be screen free. Keeping TVs and computers in family space is another important issue. Computers or TVs should be kept in a shared space that helps mothers to see what their children do and view and enable them to join in their children enjoyment. TVs should be turned off at meal and sleeping times. Mothers should also be a role model for their young children by limiting their own screen times ^(6, 8, 21).

Mothers should also be prepared to teach basic devices skills for their children and empower them to use such devices more safely and effectively. Setting up some simple and fair rules about media use is also an important responsibility for mothers. They should talk with their children about how much screen time is allowed and the permitted activities and give them the chances to choose from a list of games and activities. Providing positive feedback and rewarding are very important when children follow these rules, while children should receive simple punishment if they don't follow the agreed ones. Mothers should also share their young children playing games and choose appropriate simple games and programs for them. Educational valuable programs specifically designed to young children are advisable. Violence games or movies should not be allowed ^(4, 22).

Concerning using Internet, mothers should make sure that they can see what websites their children are viewing. Spending time with children, showing them websites that are fun, interesting, educational and suitable for their age is another important responsibility for mothers. Moreover, they should consider installing programs or filters that could block children's access to inappropriate internet content. Mothers should also encourage their young children to discuss freely any questionable situations they exposed to while using internet and be concerned with answering such questions in a very simple and summarized manner ^(21, 23).

Due to the negative effects of excessive use of technological devices on physical and mental health of children, screen times must now be considered as a major health issue and must become one of the priorities for children's health. Reducing children's daily exposure to screen media to fewer hours per day and assuring appropriate use of such technological devices could be achieved by raising parents' awareness regarding the recommended guidelines for safe use of such devices ⁽⁴⁾.

Aim of the study

The aim of this study was to assess mothers' awareness regarding the use of technological devices by their preschool children.

Research Questions

1- To what extent mothers are aware regarding the use of technological devices by their preschool children?

2. MATERIALS AND METHOD

Materials

Research Design:

A descriptive research design was utilized in this study.

Setting:

The study was conducted at three sport clubs representing different social classes in Alexandria namely; Smouha Youth Center, Egyptian Olympic Club and Al- Dahrya Youth Center.

Subjects:

A convenient sample of 100 mothers from the previously mentioned settings who fulfilled the following criteria comprised the study subjects:

- Their children's age from 3 to 6 years (preschool children).
- Having access to technological devices such as computers/laptops, mobiles / tablets and T.V.

Tool:

One tool was used to collect the data namely " Mothers' Awareness regarding the Use of technological devices by their preschool Children Structured Interview Schedule".

International Journal of Novel Research in Healthcare and Nursing

Vol. 6, Issue 1, pp: (786-802), Month: January - April 2019, Available at: www.noveltyjournals.com

This tool was developed by the researchers after thorough review of the related literature to assess mothers' awareness regarding their children use of technological devices. It included five parts:

Part I: Characteristics of mothers such as: age, educational level, occupation, marital status and number of children.

Part II: Mothers' use of technological devices as: type of devices used by mother, purpose for using such devices and number of daily hours spent in using these devices.

Part III: Characteristics of children such as: age, sex, birth order and attending nursery school.

Part IV: Children's use of technological devices as: type of technological devices available for the child at home, age of starting using these devices, purpose for using and reasons for exceeding the allowed daily hours of using such devices.

Part V: Mothers' awareness regarding their children' use of technological devices including mobiles, computers and T.V. such as:

- Using proper lightning system while using technological devices
- Keeping child's room free from such devices
- Allowing Suitable daily use hours
- Wearing medical glasses while using such devices
- Observing the child while using technological devices
- Leaving proper distance between child's eye and technological devices while using
- Never allowing the child to watch violence movies or games on technological devices
- Caring about making agreement with the child concerning the allowed time of use
- Punishing the child if exceeding the allowed time of use
- Caring about not leaving child alone while using technological devices
- Specifying the types of watched movies or games.

Part VI: Mothers' awareness regarding negative effects of overusing of technological devices such as:

- Physical problems (e.g. headache , backache, eye strain)
- Nutritional problems (e.g. overweight , loss of weight, poor dietary habits)
- Psychological or behavioral problems (e.g. aggression , anger ,attention deficit)
- Sleep problems (e.g. insomnia , night mares, interrupted sleep)
- Social and communication problems (e.g. social isolation ,lacking of friendship)

Method:

- An official permission was obtained from responsible authorities of the study settings to conduct the study after explaining the aim of the study.
- The tool was developed by the researcher after review of literature.
- The tool was tested for content validity by a jury of five experts in the field of pediatric nursing. Based on their comments, necessary modifications were done.
- Reliability of the tool was done using Cronbach's alpha test ($r = 0.86$).
- A pilot study was carried out on 10 mothers attending the previously mentioned settings to test the feasibility and applicability of the tool (those mothers were excluded from the study subjects).

- Every mother attending with her child who joins a sport game in the previously mentioned settings was interviewed individually to collect the necessary data. The Interview for mothers was carried out either before or after the sport game.
- The duration of each interview lasted from 30-45 minutes.

Scoring System:

A scoring system was done regarding mothers' awareness of using technological devices by their Children. Mothers responses concerning each item were scored as follow: two for always response (completely aware) / one for sometimes response (partially aware) / zero for never response (not aware). A total score was obtained for each technological device. Then, total score was obtained; the obtained score was converted to total percent score. The percent score was transformed into qualitative manner as follow:

Completely aware => 65% / partially aware = 40-65% / not aware =< 40%

Ethical considerations:

- Written informed consents were obtained from the mothers after explaining the aim of the study.
- They have the right to refuse to participate in the study.
- They were assured regarding the confidentiality of the collected data.
- Anonymity and privacy were also considered.

Statistical Analysis:

After collection of data it was revised, coded and fed to statistical software SPSS version 20. The given graphs were constructed using Microsoft excel software. All statistical analyses were done using two tailed tests and alpha error of 0.05. The P value less than or equal to 0.05 was considered to be statistically significant.

The following statistical measures were used:

Descriptive statistics:

- Number and percentage: They were used for describing and summarizing qualitative data.
- Mean (\bar{x}) was used to measure central tendency in statistical tests of significance.
- Standard deviation (SD) is the average of the deviation from the mean. It was used for measuring the degree of variability in a set of scores.
- Pearson's chi square test and Monte Carlo test : are non-parametric statistical tests that were used to test the association (or relationship) between the categories.

3. RESULT

Table 1 illustrates characteristics of the mothers. It is clear from the table that, one third of mothers (33% and 31%) were from 25 to less than 30 years old and from 30 to less than 35 years old respectively. Moreover, only 11% of the mothers were from 20 to less than 25 years old with a mean age of 26.5 ± 4.65 years. As regard level of education, it was found that 34% and 28% of mothers had secondary and university education respectively while 19% had elementary education and only 4% of them were illiterate. The same table revealed that slightly more than half of the mothers (54%) were working mothers and 46% of them were house wives. The daily working hours of two thirds of the working mothers (66.7%) were from 6 to 8 hours. Concerning the marital status, it was found that 96% of mothers were married. It is also obvious from the table that, 43% of the mothers had 2 children, while only 11% of them had 4 children. Moreover, 57% of mothers had 2 rooms in their homes. It was also shown that 58% of mothers had not assisting persons in their children care.

Table 2 portrays mothers' using of technological devices. It was observed that, all mothers (100%) used mobiles while, 32%, 30% and 28% of them used computers, T.Vs and laptops in their homes respectively. On the other hand, only 12% of the mothers used tablets. Three quarters of mothers (75%) reported that they always used the technological devices

daily. It is obvious from the table that, the majority of mothers (94% and 92%) used the technological devices for entertainment and communication with their friends and relatives respectively. It was found that two thirds of the mothers used computer daily less than two hours. Concerning using mobiles 63 % of mothers used mobiles 2-4 hours daily. While 47 % of the mothers used to watch T.V 2-4 hours daily .Almost half of the mothers (47%) reported that they used technological devices for more than 8 hours daily.

Table 3 clarifies characteristics of children. The table revealed that half of children (52%) were 4 to 6 years old with a mean age of 4.6 ± 1.0 . Females constituted 57% of children while, 43% of them were males. It was shown that 48% of children were the first in their birth order. The majority of the children (92%) attended nursery school.

Children' use of technological devices at home is presented in **table 4**. It is clear that more than half of children (55%) started using of technological devices at 3 to less than 4 years and 40% of them started using at 2 to less than 3 years. All children (100%) used mobiles and T.Vs beside, nearly equal percent of children (26%, 24% and 23%) used laptops, computers and tablets respectively. Moreover, 100% of children used such devices for entertainment. Unfortunately, 93% of children exceeded the allowed daily use hours of technological devices. Three quarters of mothers (75%) attributed the purpose of exceeding the allowed daily use hours of these devices to their occupying with household activities. Meanwhile, 52% of mothers reported that they used such devices to distract their children.

Table 5 shows mothers' awareness concerning their children's use of mobile or tablet. It is clear from the table that, the majority of the mothers (95%) were aware of the proper lightening system during use of mobile and / or tablet. Moreover, 62% of them were aware that watching violence movies or games on mobile should not be allowed. On the other hand, 45% of mothers were partially aware about caring of making agreement with the child concerning the allowed time of using such devices. Unfortunately, half of the mothers (50%) were not aware of the daily allowed hours for using mobile and tablet that are suitable for their children's age.

Table 6 illustrates mothers' awareness concerning their children's use of T.V. It is clear from the table that, the majority of the mothers (95%) were aware of the prober lightning system during watching TV. Moreover, more than half of the mothers (55%) were not allowing their children to watch violence movies on TV and 50% of them were aware of making their children bedrooms free from T.V screens. Furthermore, 54% of mothers were partially aware about the necessity of observing their children while watching TV. On the other hand, 80% of the mothers were not aware concerning not leaving their children alone while watching TV. Also, 64% of mothers were not aware of the allowed daily use hours that are suitable to their children's age.

Table 7 portrays mothers' awareness concerning their children's use of computer / laptop. The table revealed that, 69.2% of mothers were aware of the prober lightning system during using of computer / laptop. Moreover, half of mothers (51.3%) were aware of the prober distance that should be left between child' eye and computer while using. Small percent of mothers (7.7%) were aware of the necessity of punishing the child if exceeding the allowed time of use. Unfortunately, 63.6% of mothers were not aware concerning the necessity of child's wearing for his medical glasses while using computer / laptop. Half of the mothers (51.3%) were not keen on making their children' bedrooms free from such devices. The table also showed that 41% of mothers were not aware of the correct positioning of the child while sitting on computer / laptop.

Table 8 shows total percent score of mothers' awareness about their children's use of technological devices and its negative effects. The table revealed that two thirds of mothers (67%) were not aware of using mobile or tablet and 33% of mothers were partially aware of using them. Unfortunately, 87% of mothers were not aware of using computer while, only 13% of them were partially aware of its use. Furthermore, more than half of mothers (58%) were not aware of using TV compared to 42% who were partially aware. Concerning total score of mothers' awareness about technological devices use, the majority of mothers (93%) were not aware compared to only 7% of them who were partially aware of using technological devices. Moreover, 83% of mothers were not aware of the negative effects of technological devices compared to only 2% and 15% respectively who were completely and partially aware of its negative effects.

Table 9 clarifies the relationship between total score of mothers' awareness about technological devices' use and their characteristics. A significant relation was found between mothers' level of education and their total score of awareness. Where the majority of mothers who had postgraduate studies (85.7%) were partially aware compared to only 9.7% of

them who were not aware of using technological devices. On the other hand, none of mothers who had elementary or secondary education were partially aware of using technological devices compared to 20.4 % and 30.1% respectively of them who were not aware. Statistical significant difference was shown where $P=0.001$. The table also showed that all mothers who were partially aware (100%) had 3 children compared to those who had 1, 2 or 4 children where none of them were partially aware with technological devices use. Statistical significant difference was found $P= 0.001$.

Table 10 illustrates the relationship between total percent scores of mothers' awareness about negative effects of technological devices' use and their characteristics. It was observed that, there was significant relation between mothers' occupation and total score of mothers' awareness where all the mothers who were completely aware (100%) and the majority of those who were partially aware (80%) were working mothers . Compared to 0 % and 20% respectively of housewives who were completely or partially aware. Statistical significant difference was found $P= 0.016$. The table also revealed that all the mothers who were completely aware and 60% of those who were partially aware had either 2 or 1 child compared to none of those who had 3 and 4 children who were completely aware and 6.7 % and 6.7 % respectively who were partially aware of negative effects of technological devices. Statistical significant difference was found $P= 0.001$.

4. DISCUSSION

Most children now have access to many technological devices at home like computers, mobiles and TVs. Some studies reported that pre-school children spend more time watching T.V or using mobiles and tabs than using computers⁽²⁴⁾. In the present study findings, all mothers reported that their children use mobiles and watch T.V daily. Moreover, most of them exceeded the allowed hours of use (1/2 -1 hour daily). The finding of the current study could be justified by perception of many mothers that mobile use or watching TV is an easier, safe and suitable technological devices for young children use than computers or lap-top. Furthermore, some mothers may be afraid from leaving their young children alone in front of such expensive devices as computers or laptops. Limited education and computer illiteracy among some mothers could also be another contributing factor for these findings as nearly one-half of the mothers had either elementary or secondary education.

Additionally, when parents themselves have too little experience with these technological devices, it may become difficult for them to support their children in using such devices. The findings of the present study were similar to a study conducted by Wartella et al. (2013) and Genc (2014) who reported that TV and mobiles continues to dominate children's media use as preschool-aged children's total screen media time reaches about 3 hours a day^(25, 26). In the same line Kabali et al. (2015) reported that the majority of children had used a mobile device; and the majority of the parents let their children play with the mobile devices while they did chores or for keeping them calm in public places or to put their children to sleep. Parents use mobiles as a "digital pacifier" to distract their children or as a means to manage their children's behaviors⁽²⁾.

American Academy of Pediatrics recommended establishing a family home use plan and reasonable firm rules relative for all types of media in order to build a model for active parenting.⁽²⁷⁾ In this regard, the present study findings revealed that only one third of the mothers were keen on making agreement with their children about the allowed time of use and nearly half of them were not aware of the importance of punishing their children if they exceed the allowed time of use.

Lacking of rules and restrictions among mothers was also observed in some behaviors where only one-quarter of them were concerned with observing their children while using the mobile or watching T.V or specifying the type of movies or games for their children. Moreover, more than three quarters of mothers were either partially aware or not about the necessity of not leaving their children alone while using such devices. This could be attributed to lacking of parents awareness concerning the necessity of sitting such rules for their children that could contribute in misusing of EM devices at home. Different rules of mothers with the busy lives and break down in parental authority may explain why rules may not be present or enforced at home⁽²⁸⁾. Similarly, a study conducted by Strasburger (2016) reported that Many parents seem to have few rules⁽²⁹⁾ regarding the use of media by their children⁽²⁹⁾.

The extent to which parents play a role in their children's media use is influenced by sociodemographic factors such as family income, parental education, employment status, and marital status⁽²⁴⁾. The findings of the present study highlighted that there was significant relation between mothers' level of education and their total score of awareness

where the majority of mothers who had postgraduate studies were partially aware about their children use of technological devices. These findings could be explained by the possibility that highly educated mothers have better chance to access internet resources and being aware about the positive and negative effects of technology on their children. These results are in harmony with the findings of Cox et al. (2012) and Waters et al. (2016) who pointed out that maternal education and awareness are linked to frequency of their children's exposure to electronic media, such that children of mothers with less education view television more frequently^(15, 24). Karaagac (2015) also reported that educated parents can have a better control of children's media use and its content⁽³⁰⁾. These studies indicate the importance of investigating parenting and children's technological devices use in conjunction with parent and family characteristics as important contextual fact^(15, 24, 30).

Availability of technological devices at children bedrooms could also be a possible reason for losing control on the spending hours of using these devices by young children in the present study. As shown in the present study findings, one-half of the mothers were either partially aware or not aware concerning the necessity of making their children bedrooms free from TV screens. Additionally, three quarters of mothers either had incomplete awareness or lack of awareness regarding the necessity of not leaving their children alone while using mobiles. So the majority of mothers reported that their children exceeded the allowed hours of use in all technological devices. This could be explained in the light of the fact that more than half of the mothers were working and two thirds of them had 6-8 working hours as shown in the present study findings. Besides, the majority of mothers had the responsibility of caring of two or more children, in addition more than half of them had no assisting persons with their children care. Such circumstances could result in using for media screen recreation as a proxy-baby sitter.

A study carried out by Atkin et al. (2013) showed similar findings, where they reported that nearly three-quarters of study subjects had a TV and computers in their bedrooms and there is were associations of bedroom media and screen-time which leads to being in front of the screen for long time⁽³¹⁾.

Mothers' falling in love with technology is another influencing and contributing factor that could affect the frequency and extent to which they permit for their children to use such EM devices. As shown in the present study findings, three quarter of mothers reported that they use technological devices daily. Moreover, the total daily hours of using such devices ranged between 4-8 hours for one-half of mothers and more than 8 hours for almost half of them. The present study findings are similar to a study conducted by Radesky et al. (2014) who pointed out that caregivers were highly absorbed in their mobile devices, rather than paying attention to their children, resulting in decreased responsiveness, fewer conversations with their children, and harsh responding to children's bids for attention⁽³²⁾.

Television constitutes an influential aspect of young children's developmental environment. The most likely source of positive influence of television on children's development is the educational programming that is specifically designed to increase school readiness and social competence in young viewers⁽³³⁾. Almost all mothers of the present study reported that they used TV mainly for their children entertainment and as a way for distraction. The most watched programs were cartoon films and Arabic series or films as reported by the majority of mothers while educational programs were mentioned by minute percent of them. Moreover, almost two thirds of the mothers were not aware of the suitable daily use hours of watching TV. These results are in harmony with the findings of Hesketh et al. (2012), Carson et al. (2014) and Knowles et al. (2015) who reported that the majority of mothers encouraged television viewing for their young children. They also highlighted that parents perceive television viewing as a distraction tool to allow them to do household tasks⁽³⁴⁻³⁶⁾.

The findings of the current study also revealed that only less than one-quarter of the mothers were concerned with observing their children while watching TV. Furthermore, nearly one-half of children were permitted to watch violence movies. This could be explained by mothers' preoccupying with the burden of providing care for more than two children. Additionally, half of children had TV screen in their bed rooms which increase the time of watching. Lacking of mothers awareness regarding the hazardous of overusing of such devices could also contribute in such poor practices that followed by mothers. Limited educational levels of half of the mothers in the present study could also justify lacking of mothers awareness. Moreover, some mothers believe that on weekends children could be able to spend their leisure time as they wish regardless the frequency or extent of watching specially in lacking of in-home affordable alternatives⁽³⁷⁾.

The present study revealed that less than half of the mothers allowed for their children to use computers/laptop. Moreover, the findings reflected lacking of mothers awareness concerning mediation practices for computer use. Minimal use of computer by children in the present study compared the use of mobile and T.V could be attributed to unavailability of computer or lap-top in all homes.

Mothers provide an important role model for their children, firstly with their own media habits and preferences, secondly by acquiring certain devices and technologies in the home environment ⁽³⁸⁾. The mother's media use seems to function as an important predictor of children's media consumption. The present study findings revealed that almost all mothers used mobiles and nearly half of them used computers or laptop and watching TV. Consequently, their children exceeded the time allowed for watching TV and using mobiles or computers.

In short, there is nothing to be lost by children' watching less screen media but, potentially a great deal to be lost by allowing young children to continue to watch as much as they do. By ignoring the growing body of evidence linking screen time with a children' health, we ultimately be responsible for the greatest health scandal of our time.

5. CONCLUSION

This study showed lacking of mothers' awareness concerning 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 technological devices.

6. RECOMMENDATIONS

Based on the previous findings, the following recommendations are suggested:

- 1- Special workshops for mothers should be organized in Nurseries and day care centers to raise their awareness about recent guidelines that should be followed with young children in using technological devices as well as the risk associated with the overuse of such devices including physical, psychological behavioral and social negative effects.
- 2- Mother s should be encouraged to monitor and control the time their children spend on hand-held computer games and media.
- 3- Schools should adopt a position on the amount of time young children spent in front of screen in and out of school and communicate this to children and mothers.
- 4- As a guiding principle, mothers should be encouraged concerning the necessity of children spending for more time in the real world than they do in the virtual world.
- 5- Necessity of utilizing educational practices and polices related to proper and safe use of technological devices in early childhood education sittings.
- 6- Mothers should be encouraged to set and enforce rules for using technological devices within their households.
- 7- Parents should be enhanced to limit the time their children spend with technological devices and to emphasize alternative activities such as athletics and imaginative play.
- 8- More efforts are needed to help parents and policy makers to maximize the positive effects and minimize the negative ones of home computers in children lives.
- 9- Stronger actions are needed on the part of policy makers and software developers to reevaluate the content of games targeted to children to help parents choose the appropriate games for their children and to monitor violent content on the web.
- 10- Mass media should raise parents awareness regarding the importance of joining their young children on other activates away from electronic screens such as reading, sports and real world social pursuits; mass media should also emphasize the negative impact of excessive screen use on children health.

Table (1): Characteristics of Mothers

Mothers' characteristics	No	%
	n=100	
Age		
20-25 years	11	11.0
25-30 years	33	33.0
30-35 years	31	31.0
35 years and more	25	25.0
Range	22-38	
Mean±SD	26.5±4.65	
Level of Education		
Illiterate / read & write	4	4.0
Elementary education (Primary / preparatory)	19	19.0
Secondary / diploma	28	28.0
University	34	34.0
Post Graduate	15	15.0
Occupation		
Housewives	46	46.0
Working mother	54	54.0
No. of working hours (n=54)		
< 6 hours	24	24.0
6-8 hours	66.7	66.7
>8 hours	9.3	9.3
Marital Status		
Married	96	96.0
Divorced	4	4.0
No of children		
1	18	18.0
2	43	43.0
3	28	28.0
4	11	11.0
No of rooms		
1	5	5.0
2	57	57.0
3	32	32.0
4	6	6.0
Assistance in child care		
Yes	42	42.0
No	58	58.0

Table (2): Using of Technological Devices by Mothers

Mothers' Use of technological devices	No	%
	n=100	
Types of technological devices used*		
Computer	32	32.0
Mobile	100	100.0
Tablets	12	12.0
laptop	28	28.0
TV	30	30.0
Daily Use of technological devices		
Always	75	75.0
Sometimes	25	25.0
Purpose of using technological devices *		
Gain knowledge	40	40.0
Entertainment	94	94.0
Communications with friends and relatives	92	92.0
Online Shopping	20	20.0
Daily hours of using computer / laptop (n=60)		
< 2 hours	40	66.7
2-4 hours	15	25.0
>4 hours	5	8.3
Daily hours of using Mobile / tab		
< 2 hours	8	8.0
2-4 hours	63	63.0
>4 hours	29	29.0
Daily hours of watching TV		
< 2 hours	26	26.0
2-4 hours	47	47.0
>4 hours	27	27.0
Total daily hours of using technological devices < 4 hours		
5	5	5.0
4-8 hours	48	48.0
>8 hours	47	47.0

*Multiple responses were allowed

Table (3): Characteristics of Children

Children' characteristics	No	No
	n=100	
Age		
3 - < 4 years	21	21.0
4 - < 5 years	27	27.0
5 - 6 years	52	52.0
Range	3-6	
Mean \pm S.D.	4.6 \pm 1	
Sex		
Male	43	43.0
Female	57	57.0
Birth order		
1 st	48	48.0
2 nd	36	36.0
3 rd or more	16	16.0
Attending Nursery School		
Yes	92	92.0
No	16	16.0

Table (4): Children Use of Technological Devices at home

Using of Technological Devices	%	%
	n=100	
Child age in starting using technological devices		
1.5 - < 2 years	5	5.0
2 - < 3 years	40	40.0
3 - < 4 years	55	55.0
Type of technological devices available for the child*		
Computer	24	24.0
Mobile	100	100.0
Tab	23	23.0
laptop	26	26.0
TV	100	100.0
Purpose of using technological devices		
Entertainment (Playing games)	100	100.0
Communications with friends and relatives	24	24.0
Using Internet (YouTube)	30	30.0
Daily use of technological devices		
Computer		
Yes	16	16.0
No	84	84.0
Mobile / Tab		
Yes	94	94.0
No	6	6.0
TV		
Yes	92	92.0
No	8	8.0
Exceeding allowed daily use hours		
Yes	93	93.0
No	7	7.0
Purpose of exceeding allowed daily use hours*		
Mothers occupying with household activities	75	75.0
Child insistence for using technological devices	35	35.0
To fill the child's Leisure time (Child distraction)	52	52.0
Child desire to imitate older siblings / parents	14	14.0

*Multiple responses were allowed

Table (5): Mothers' Awareness Concerning their Children' Use of Mobile/ Tablet (n= 100)

Awareness about Mobile / Tablet Use	Completely aware		Partially aware		Not aware		Total	
	No	%	No	%	No	%	No	%
Allowing daily use hours suitable to child's age	30	30.0	20	20.0	50	50.0	100	100
Providing proper lightening system during use	95	95.0	5	5.0	0	0	100	100
Keen on child's wearing for medical glasses while using mobile (n=29)	24	24.0	24	24.0	52	52.0	100	100
Keen on not leaving child alone while using mobile	21	21.0	42	42.0	37	37.0	100	100
Leaving proper distance between child's eye and mobile while using	59	59.0	15	15.0	26	26.0	100	100
Observing the child while using mobile	31	31.0	41	41.0	28	28.0	100	100

Never allowing the child to watch violence movies or games on mobile	62	62.0	36	36.0	2	2.0	100	100
Caring about making agreement with the child concerning the allowed time of use	36	36.0	45	45.0	19	19.0	100	100
Punishing the child if exceeded the allowed time of use	15	15.0	42	42.0	43	43.0	100	100
Specifying the types of watched movies or games	28	28.0	42	42.0	30	30.0	100	100

Table (6): Mothers' Awareness Concerning their Children' Use of TV (n= 100)

Awareness about TV Use	Completely aware		Partially aware		Not aware		Total	
	No	%	No	%	No	%	No	%
Allowing daily use hours suitable to child's age	18	18.0	18	18.0	64	64.0	100	100
Keen on making their children bedrooms free from T.V screens	50	50.0	20	20.0	30	30.0	100	100
Providing proper lightening system during use	95	95.0	5	5.0	0	0.0	100	100
Keen on child's wearing for medical glasses while watching Tv (n=29)	24.1	24.1	34.5	34.5	41.4	41.4	100	100
Observing the child while watching TV	23	23.0	54	54.0	23	23.0	100	100
Leaving proper distance between child's eye and TV while watching	34	34.0	43	43.0	23	23.0	100	100
Never allowing the child to watch violence movies on TV	55	55.0	45	45.0	0	0	100	100
Caring about making agreement with the child concerning the allowed time of use	17	17.0	43	43.0	40	40.0	100	100
Punishing the child if exceeding the allowed time of use	7	7.0	43	43.0	50	50.0	100	100
Specifying the types of watched movies or programs	33	33.0	36	36.0	31	31.0	100	100
Caring about not leaving child alone while watching TV	20	20.0	0	0	80	80.0	100	100
Allowing suitable program or movies for the child to watch on TV	47	47.0	51	51.0	2	2.0	100	100

Table (7): Mothers' Awareness Concerning their Children' Use of Computer / laptop (n= 39)

Awareness about Computer / Laptop Use	Completely aware		Partially aware		Not aware		Total	
	No	%	No	%	No	%	No	%
Allowing daily use hours suitable to child's age	19	48.7	19	48.7	1	2.6	100	100
Providing proper lightening system during use	27	69.2	6	15.4	6	15.4	100	100
Keen on child's wearing for medical glasses while using computer / laptop(n=11)	1	9.1	3	27.3	7	63.6	100	100
Keen on making their children bedrooms free from computer / laptop	17	43.6	2	5.1	20	51.3	100	100
Observing the child while using computer / laptop	5	12.8	21	53.8	13	33.4	100	100
Leaving proper distance between child's eye and computer while using	20	51.3	11	28.2	8	20.5	100	100
Correct positioning of the child while sitting in	9	23.1	14	35.9	16	41.0	100	100

front of computer								
Never allowing the child to watch violence movies on computer	17	43.6	15	38.5	7	17.9	100	100
Caring about making agreement with the child concerning the allowed time of use	18	46.2	16	41	5	12.8	100	100
Punishing the child if exceeding the allowed time of use	3	7.7	23	59	13	33.3	100	100
Specifying the types of watched movies or games	8	20.5	15	38.5	16	41	100	100
Caring about not leaving child alone while using computer	5	12.8	21	53.8	13	33.4	100	100

Table (8): Total Percent Score of Mothers' Awareness about their Children' Use of Technological Devices and Its Negative Effects

Mothers' Awareness	Total Percent Score Mothers' Awareness about Technological Devices' Use						Total	
	Completely Aware		Partially aware		Not aware		No	%
	No	%	No	%	No	%		
Total awareness score of mobile/tablet use	0	0.0	33	33.0	67	67.0	100	100.0
Mean ± SD	9.43± 3.003							
Mini-Mix	3-16							
Total awareness score of computer use	0	0.0	13	13.0	87	87.0	100	100.0
Mean ± SD	4.71± 6.481							
Mini-Mix	0-21							
Total awareness score of TV use	0	0.0	42	42.0	58	58.0	100	100.0
Mean ± SD	12.91± 3.078							
Mini-Mix	16-19							
Total percent score of mothers awareness about Technological Devices' use	0	0.0	7	7.0	93	93.0	100	100.0
Mean ± SD	27.05± 8.631							
Mini-Mix	10-51							
Total percent scores of mothers awareness about the negative effects of Technological Devices	2	2.0	15	15.0	83	83.0	100	100.0
Mean ± SD	4.55± 2.285							
Mini-Mix	0-11							

Table (9): The Relationship between Total Percent Score of Mothers' Awareness about Technological Devices' Use and their Characteristics

Mothers' Characteristics	Total Percent Score of Mothers Awareness about Technological Devices' Use				Total		Significance
	Partially aware n= 7		Not aware n= 93		No.	%	
	No.	%	No.	%			
Mothers' Education							
Illiterate& read and write	0	0.00	4	4.3	4	4.0	^{Mc} P = 0.001*
Primary& preparatory school	0	0.00	19	20.4	19	19.0	
Secondary school/diploma	0	0.00	28	30.1	28	28.0	
University	1	14.3	33	35.5	34	34.0	
Postgraduate studies	6	85.7	9	9.7	15	15.0	
Mothers' Occupation							
House wife	1	14.3	45	48.4	46	46.0	^{EX} P

Working	6	85.7	48	51.6	54	54.0	= 0.120		
Children' Number									
One	0	0.00	18	19.4	18	18.0	Mc P = 0.001*		
Two	0	0.00	43	46.2	43	43.0			
Three	7	100.0	21	22.6	28	28.0			
Four	0	0.00	11	11.8	11	11.0			

MC P: Monte Carlo Test

***Significant at P≤0.05**

EX P: Exact test is instead of Monte Carlo Test

Table (10): The Relationship between Total Percent Score of Mothers Awareness about Negative Effects of Technological Devices' Use and their Characteristics

Mothers' Characteristics	Total Percent Score of Mothers Awareness about Negative Effects of Technological Devices' Use						Total		Significance
	Completely Aware n= 2		Partially aware n= 15		Not aware n= 83		No.	%	
	No.	%	No.	%	No.	%			
Mothers' Education									
Illiterate& read and write	0	0.00	0	0.00	4	4.8	4	4.0	Mc P = 0.124
Primary& preparatory school	0	0.00	1	6.7	18	21.7	19	19.0	
Secondary school/diploma	0	0.00	3	20.0	25	30.1	28	28.0	
University	2	100.0	5	33.3	27	32.5	34	34.0	
Postgraduate studies	0	0.00	6	40.5	9	10.8	15	15.0	
Mothers' Occupation									
House wife	0	0.00	3	20.0	43	51.8	46	46.0	MC P = 0.016*
Working	2	100.0	12	80.0	40	48.2	54	54.0	
Children' Number									
One	0	0.00	9	60.0	9	10.8	18	18.0	MC P = 0.001*
Two	2	100.0	4	26.7	37	44.6	43	43.0	
Three	0	0.00	1	6.7	27	32.5	28	28.0	
Four	0	0.00	1	6.7	10	12.0	11	11.0	

MC P: Monte Carlo Test

***Significant at P≤0.05**

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