

## Effects Of usage of Smart devices On Child Health and Behavior In Thi-Qar Governorate / Comparative Study ( 2018 – 2019 )

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### ABSTRACT:

The past decade has seen a profound increase in use of technology by children, some as young as one year of age. Critical milestones for child sensory, motor and attachment development are not being met. Developmental delay, obesity, mental illness, and attention deficit ,sleep disruption , and also Social disorders such as: communication, aggression and declining empathy ,are now becoming the norm.

**The aims:** of this study are to determine if there is any significant statistical association between excessive usage of smart devices and change in child behavior and health ( either positive effect or negative effect ) . And to explore the purpose role of family about this problem .

**Method:** This is a comparative study done on population of children aged between 3-14 years who are living in Thi-qar Governorate, south of Iraq, during period from August, 2018 till April, 2019.

The study included 200 healthy children chosen selectively from the relatives of patients who consult outpatient departments of the hospitals and neighbors. One hundred of them are exposed to the risk factor (use smart devices) and considered as a cases and other 100 are not exposed to the risk factor and considered as control.

**Results:** The study shows that most of children who use the smart devices are from urban area ( 73 % ) versus ( 27 % ) are from rural area and 69 % of them are using the devices less than 5 hours \ day and 31 % of them are using it more than 5 hours \ day .

Also the study shows there is a significant adverse effect of prolong use of digital devices by children on their vision , playing with others and the sleep patterns . Also it associated with significant increase in the percentage of headache and neck pain, but it is associated with increase in their learning abilities.

**Conclusions:** Prolong using of smart devices have many adverse effects on child health and behaviors in the form of aggressive behavior , decrease in school performance , headache , neck pain, visual problems and appetite disturbances , but its usage might increase their learning abilities.

**Recommendations:** To encourage zero media usage for children under 2 years of age and limited time for those over 10 years of age and this problem need further studies to follow up the effect of digital devices on child health and behavior.

**Key words:** Digital devices, child health, behavior.

## INTRODUCTION :

The past decade has seen a profound increase in use of technology by children, some as young as one year of age. Critical milestones for child sensory, motor and attachment development are not being met. Developmental delay, obesity, mental illness, and attention deficit ,sleep disruption , and also Social Disorders such as: communication, aggression and declining empathy ,are now becoming the norm (1,2).

Media violence has now been categorized as a Public Health Risk due to causal links to child aggression (3). Brain development research shows technology overuse by children results in “pruning” of tracks to the frontal cortex, adversely affecting executive functioning and impulse control (4,5). Schools continue to escalate use of “educational” technologies without any research evidence to show efficacy or safety.

It is now time for parents, teachers, health professionals, government, researchers and technology production corporations to join together to manage balance between healthy activity and technology use, a concept termed *Balanced Technology Management* (6).

As we become increasingly more reliant and absorbed in technology, it is no surprise that today’s children have become avid users as well (7). Laptops are being developed for children as young as five. Smart phones are now in the hands of children as young as ten (8).

Sixty percent of jobs in the market are technology related, and children need the tech advantage to be successful in such an environment .

On the other hand, however, the children using technology are becoming socially stunted (9,10).

Technology has opened up a world of great opportunities, but these opportunities *have* come with great risks. In order to fully understand the argument surrounding technology and children, we must understand the pros and the cons, and how our decisions about technology use will affect today’s children as they develop (11,12) .

### The objectives are :

- To determine if there is any significant statistical association between excessive usage of smart devices and change in child behavior and health ( either positive effect or negative effect ) .
- To explore the purpose role of family about this problem .

### Methodology:

This is a comparative study done on population of children aged between 3-14 years who are living in Thi-qar Governorate, south of Iraq, during period from August, 2018 till April, 2019.

The study included 200 healthy children chosen selectively from the relatives of patients who consult outpatient departments of the hospitals and neighbors. One hundred of them are exposed to the risk factor (use smart devices) and considered as a cases and other 100 are not exposed to the risk factor and considered as control.

### Procedure :

All the children who are participated in this study (both cases and control groups) was healthy, not complain

from any somatic or psychiatric diseases, acute or chronic illnesses . After taking the consent verbally and by direct interviewing with children and their relatives, the information was taken from both groups about ( age , gender , family number , order of child in family , economic status and address) .Also the family asked about the duration and period of using smart devices , then asked about the adverse effects ( such as : obesity , aggression , decrease school performance , headache , neck pain , and visual and learning problems ) , then asked about family actions toward this situation .All questionnaires reported on the papers and then insert the data in the Excel sheets

**Quality control :** during data collection, has been emphasis on the accuracy of the children and their relatives response to the questions, and during the data processes , the information checked several times .

**Statistical analysis:** by using Excel sheet and SPSS program, version 25

**Ethical consideration :** consent was taken verbally.

### Results and Discussion

The digital devices ( smart phones, laptops, I Paid ) are becoming increasingly popular among kids over Thi –Qar Governorate, but without any evaluation neither for its advantages nor for its disadvantages on their health or behavior .

Recent studies shows that prolong use of digital devices by children might be suffering from the side effects of over use . This includes digital eye strain ( red , dry or irritant , blurred vision , or fatigue ) (13), also associated with headache , back ,neck and/or shoulder pain. Excessive using of smart phones at early age can also trigger poor eye sight for kids(14) .

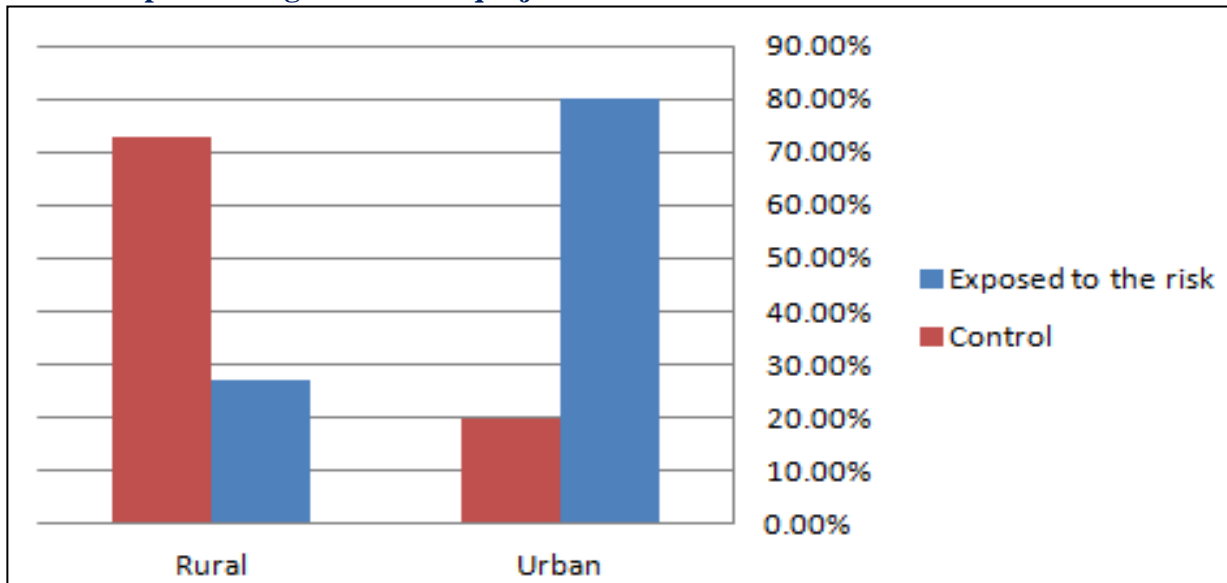
Also studies shows that child who spends more than four hours a day watching television or using digital devices is more likely to be over weight than one who watches less than two hours.

Studies shows an association of digital devices usage with sleep problems in pre – school – aged children .

The studies revealed that the length and timing (day versus evening time) of device usage , affected the amount of the increase in the sleep problems (15) .

Also children who spend more time with media devices reportedly have lower levels of personal contentment and have tendency to get in trouble more often. They also report feeling more sad or bored than their counter parts (16)

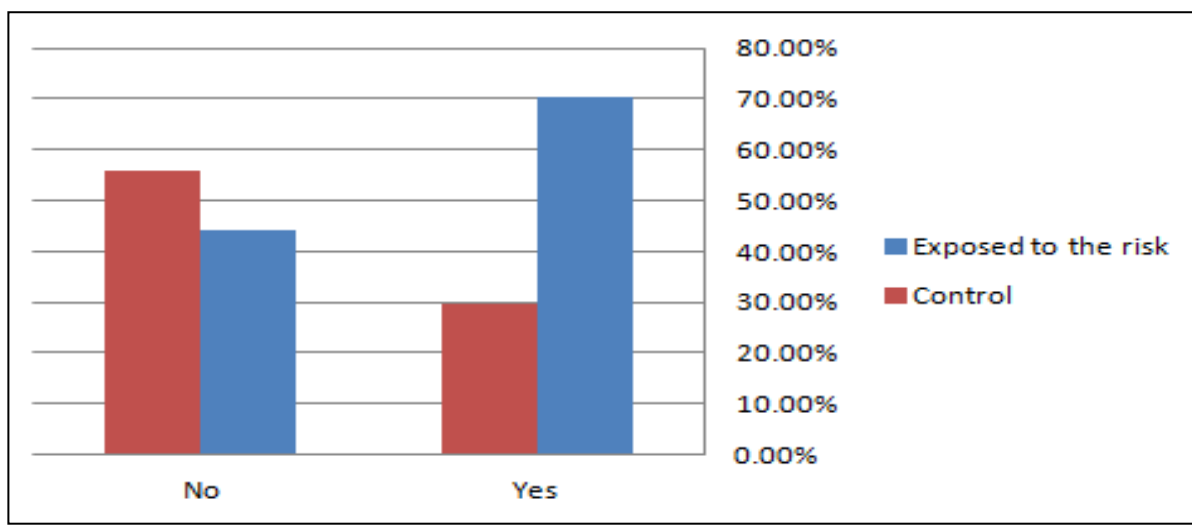
In this study , the researchers found that most of children who use the smart devices are from urban area ( 73 % ) versus ( 27 % ) are from rural area, (as shown in figure 1), and that may be due to the differences in the education levels and economic status.



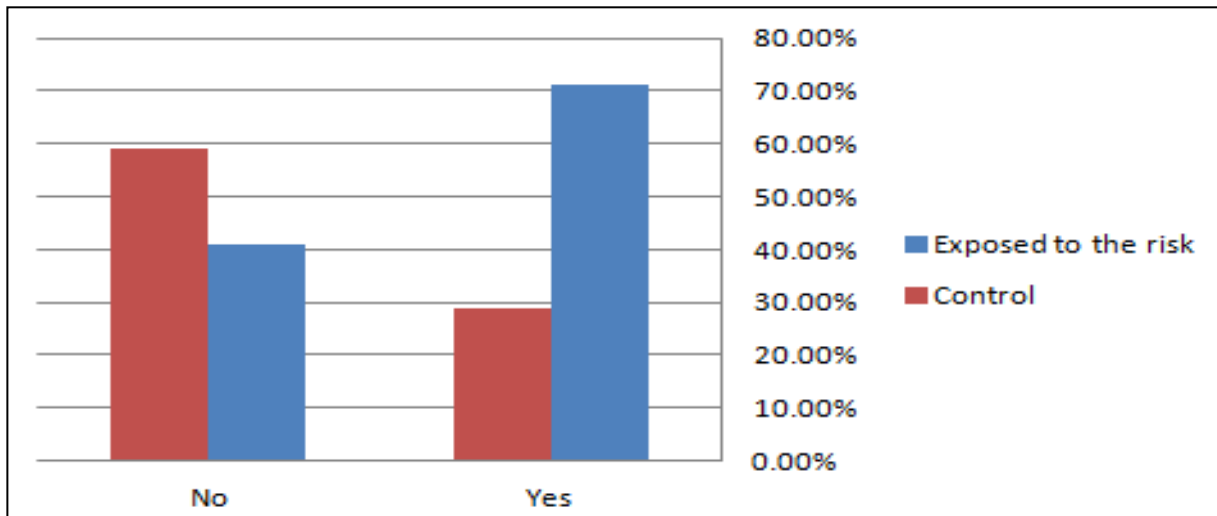
**Figure 1:** distribution of children exposed to the risk(users of digital devices) and control according to their residency

It have been found that 69 % of them are using the devices less than 5 hours \ day and 31 % of them are using it more than 5 hours \ day .

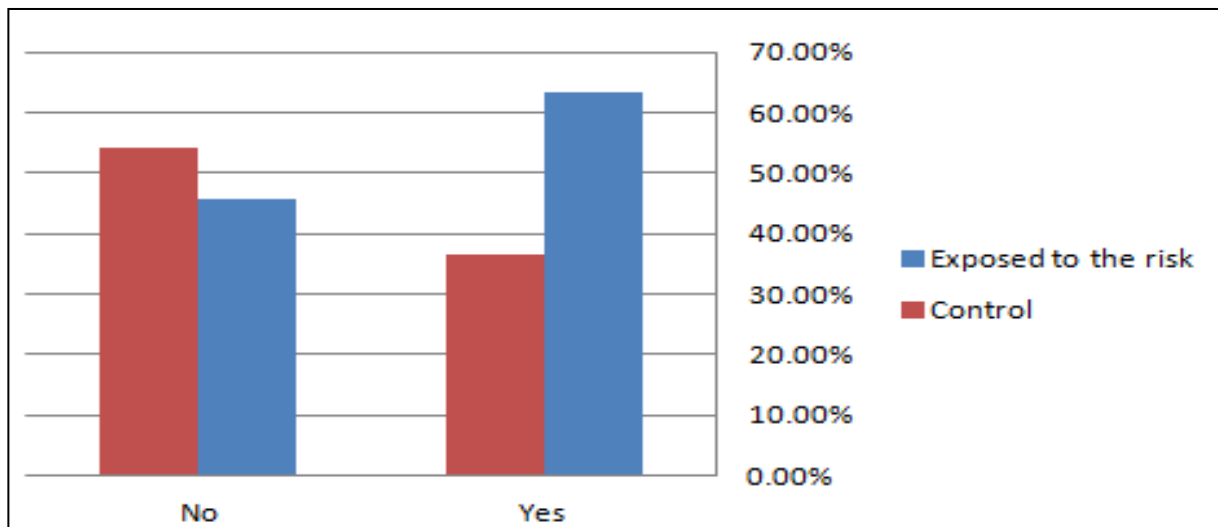
The study shows there is a significant adverse effect of prolong use of digital devices by children on their vision , playing with others and the sleep patterns . Also it associated with significant increase in the incidence of headache and neck pain, but it is associated with increase in their learning abilities (as shown in figures 2, 3, 4, 5,6 and 7).



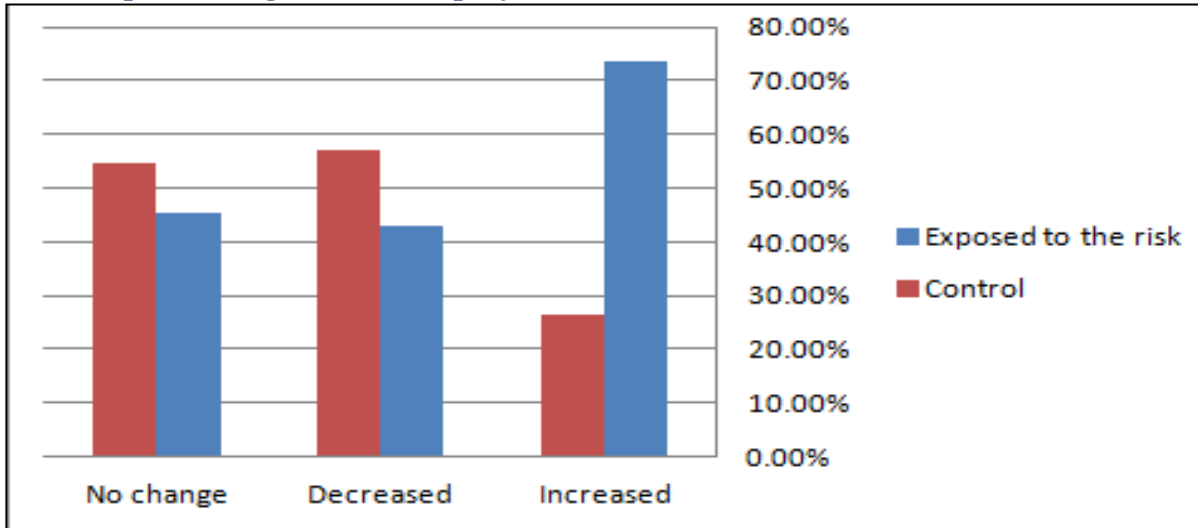
**Figure 2:**Percentage of neck pain among exposed to risk group(users of digital devices) and control group



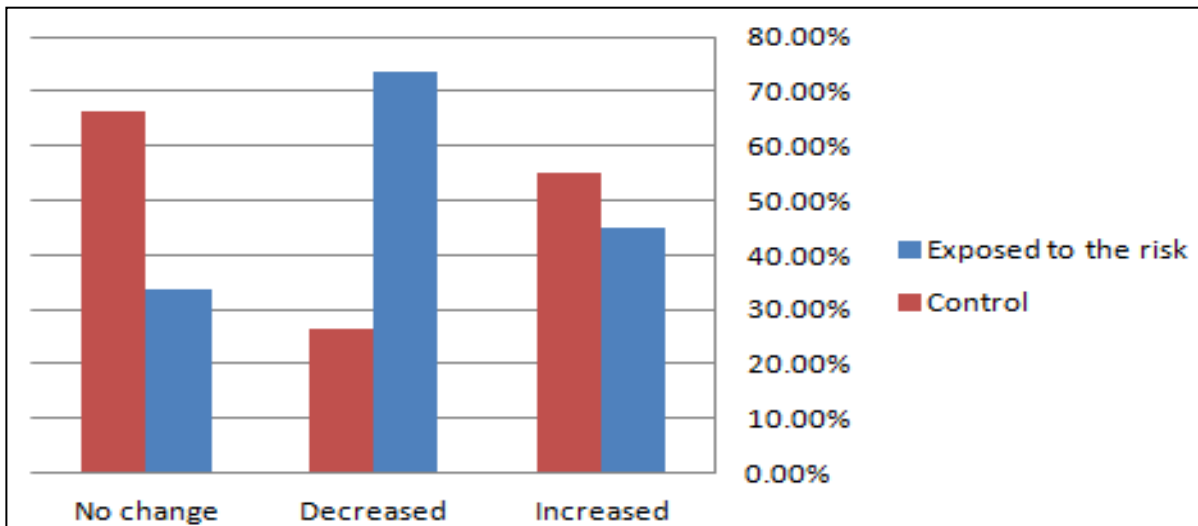
*Figure 3:Percentage of visual disturbance among exposed to risk group(users of digital devices) and control group*



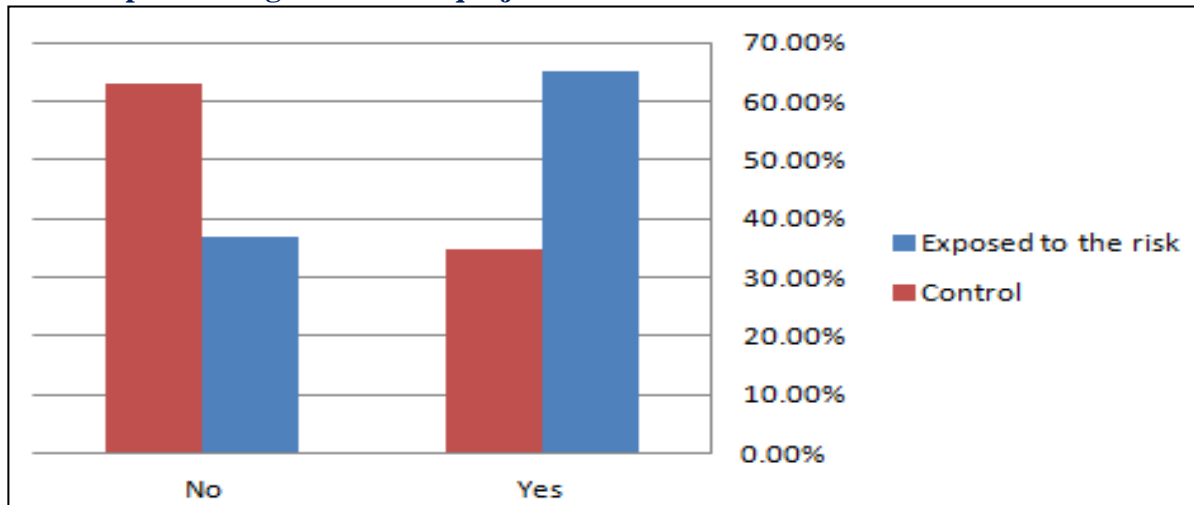
*Figure 4:Percentage of headache among exposed to risk group(users of digital devices) and control group*



*Figure 5:Percentage of changes in learning abilities among exposed to risk group(users of digital devices) and control group*



*Figure 6:Percentage of changes in playing with the others (social communications) among exposed to risk group(users of digital devices) and control group*



**Figure 7:Percentage of changes in wakeup time and abilities among exposed to risk group(users of digital devices) and control group**

These results are similar to those of many studies worldwide (13 ,14 ,15 ,16), but the researchers in this study could not assessed the effects of smart devices on children body weight because most of the families living in society of Thi – Qar Governorate have no accurate measurement of body weight over prolong period.

### Conclusion :

Prolong using of smart devices have many adverse effects on child health and behaviors in the form of aggressive behavior , decrease in school performance , headache , neck pain, visual problems and appetite disturbances , but its usage might increase their learning abilities .

### Recommendations :

- 1- Encourage zero media usage for children under than 2 years of age.
- 2- Limit the time of usage in children over 10 years of age.

- 3- Inform the parents about the adverse effects of digital devices on their child health.
- 4- Encourage other forms of playing , especially in children younger than 5 years of age as playing with blocks, coloring on blank paper or sport activities .
- 5- Do not put a television set or digital devices in the child bedroom .
- 6- Further studies are recommended to follow up the effect of digital devices on child health and behavior.

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## أثار استخدام الأجهزة الذكية على صحة وسلوك الطفل في محافظة ذي قار \ جنوب العراق \ دراسة مقارنة ( ٢٠١٨ - ٢٠١٩ )

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### الخلاصة:

شهد العقد الماضي زيادة كبيرة في استخدام التكنولوجيا من قبل الاطفال، وبعضهم لا يتجاوز عمره سنة واحدة. لم يتم الوفاء بالمرحلة الحاسمة لنمو الطفل الحسي والحركي والتعلقي. اصبح تأخر النمو والسمنة والمرض العقلي ونقص الانتباه واضطراب النمو وكذلك الاضطرابات الاجتماعية مثل التواصل والعدوانية وانخفاض التعاطف هي القاعدة.

تهدف هذه الدراسة الى تحديد فيما اذا كان هنالك أي ارتباط احصائي مهم بين الاستخدام المفرط للأجهزة الذكية والتغير في سلوك الطفل وصحته (اما تأثير ايجابي او سلبي). واستكشف دور الاسرة في هذه المشكلة. طريقة العمل: هذه دراسة مقارنة اجريت على الاطفال الذين تتراوح اعمارهم بين ٣-١٤ سنة الذين يعيشون في محافظة ذي قار جنوب العراق خلال الفترة من أب ٢٠١٨ حتى نيسان ٢٠١٩. تضمنت الدراسة ٢٠٠ طفل اصحاء تم اختيارهم بشكل انتقائي من اقارب المرضى الذين يراجعون العيادات الخارجية في مستشفيات المحافظة. مائة منهم يتعرضون لعامل الخطر ( استخدام الاجهزة الذكية) ويعتبرون الحالات. و١٠٠ اخرين لا يتعرضون لعامل الخطر ويعتبرون مجموعة المقارنة.

النتائج: اظهرت الدراسة ان معظم الاطفال الذين يستخدمون الاجهزة الذكية هم من المناطق الحضرية (٧٣%) مقابل (٢٧%) من المناطق الريفية و ٦٩% منهم يستخدمون الاجهزة الذكية اقل من ٥ ساعات يوميا و ٣١% منهم يستخدمونها اكثر من ٥ ساعات يوميا. كما اظهرت الدراسة ان هناك تأثيرا سلبيا كبيرا لإطالة استخدام الاجهزة الرقمية من قبل الاطفال على بصرهم واللعب مع الاخرين وانماط النمو. كما انه يرتبط بزيادة كبيرة في نسبة الصداع والام الرقبة، ولكنه يرتبط بزيادة في قدراتهم التعليمية.

الاستنتاجات: أن استخدام الاجهزة الذكية لفترة طويلة له العديد من الآثار السلبية على صحة الطفل و سلوكه في شكل سلوك عدواني، وانخفاض في الاداء المدرسي وصداع والام في الرقبة و مشاكل بصرية واضطرابات في الشهية، ولكن استخدامها قد يزيد من قدراتهم التعليمية.

التوصيات: تشجيع العوائل على منع استخدام الاجهزة الذكية نهائيا من قبل الطفل دون سن السنتين في العمر وتحديد وقت محدد لأولئك الذين تزيد اعمارهم عن ١٠ سنوات وهذه المشكلة تحتاج الى المزيد من الدراسات لمتابعة تأثير الاجهزة الرقمية على صحة وسلوك الطفل.