

Social, Psychological and Behavioral Implications of Smart Phone Use among Children less than 10 Years in Iraq

*Tabarek A. Noori ** Khadija Shaban Hassan ***Teeba Ahmed Hassan

*Master of community health techniques (Middle Technical University, Baghdad, Iraq).

**Master of biological science (Middle Technical University, Baghdad, Iraq).

***Bachelor of community health techniques (Middle Technical University, Baghdad, Iraq).

Abstract:

Background: In recent years, the globe has seen a rapid proliferation of the vital technology known as the smartphone. Although all age groups—children, teenagers, adults, and the elderly—need to use it on a daily basis for a variety of functions, it has long-term negative effects on their health.

Objectives: To determine the proportion of children who use smartphones and relationship with demographic variables, and the impact of smart phone use on the social, psychological and behavioral aspects of children.

Subjects and methods: The study targeted parents with children younger than 10 years in Baghdad city. A self-reported questionnaires were distributed among 200 parents that were convenience selected throughout the period of 10th January to 25th May 2022.

Results: 90.3% of children were found to use smart phone devices with boy predominance (66%); mean age 7±1.63 Years. A 37.6% of children have their own devices. Most parents (88.6%) supervise on their children while they are on the devices. Most children were normal, the remaining 12%, 7%, 6%, 3% open minded, nervous, audacious, and isolated, consequently. Fifty-eight of parents noticed variation in children's behaviors before and after using smartphone. Psychological effects detected in 17% of children. 46% of both girls & boys smart phone have effects on their study. Approximately 10% have problems in growth processes, and lost regular meals (64%).

Conclusions: The majority of parents notice differences in their child's behaviors after using smart phones.

Key words: smartphone, children less than 10 years, Social, Psychological & Behavioral complications

Introduction:

Nowadays, smartphones have become a widely used tool and the main technical advancements that has significantly changed human behavior worldwide.^{1,2} It is one of the most popular products, among both adults and kids. No children today are ignorant of smartphones. Sometimes, compared to parents, they are better at using all the applications in it. Despite the fact that prolonged usage of it especially by children is not recommended because it can affect their health³. Usage of smartphones have numerous advantages as it used for remote communication, facilitate daily activities, for different types of child's games as well as for educational purposes; this makes it incredibly simple for people to accomplish their goals and fulfill their needs.^{4,5}

Excessive smartphone's usage extremely harmful and sometimes reach to addiction level that described as a psychological disorder in which the individual's inability to control uses of smartphone that can causes significant distress or functional impairment that further creates psychological disorder, difficulties with social relationships, school or work problems^{6,7}. With both smart and basic phones included, there will be 7.26 billion mobile phone users worldwide in 2022, or 91.16% of the world's population. Feature phones are the most basic cell phones available, lacking complicated operating systems and apps, and are more common in underdeveloped nations⁸. It does not fit early childhood development stage because it is a very passive tool in which the one just sit down and absorb the Knowledge⁹. When children simply use these devices as their toys, also parents have benefitted

from these devices to liberate from their children for long periods of time, smartphone addiction and related implications are likely to arise⁹.

Despite the above advancements of smartphones, their detrimental effects are becoming ever more apparent. Smartphone addictions present with direct symptoms of psychological anxiety, communication avoidance, weakening of social adaptations, and withdrawal symptoms that are similar to those of drug or alcohol addiction. It became more dangerous when addicted by children as they are in growing stage and smart phone have detrimental effects on them. Therefore, it was necessary to highlight this group in the community.¹⁰

The current study was conducted aiming to determine the proportion of children who use smartphones and relationship with demographic variables, their impact on the social, psychological and behavioral aspects of children.

Subjects and Methods:

The present study targeted parents with children younger than 10 years who were in the community in Baghdad city. The self-reported questionnaire distributed to parents only after obtained their permission. Moreover, selection of the sample was conveniently (non-random sample) without considering whether their children had used smartphones or not.

The research objectives were clarified to the subjects before distribution of the questionnaire. The self-reported questionnaire was started from 10th January to 25th May 2022. A total of 200 questionnaires were

distributed and only 156 were completed by parents. Either the mother or father were asked to answer the questionnaire only if they had children under 10 years.

The questionnaire consists general information part (age, gender) of the child and whether he/she use smartphone or not. Followed by several questions as (time spent on smartphone, supervision of parents on child when he/she use smartphone, type of apps watched). Important & final part of questionnaire that concerned the effects of smartphone on the child (socially, psychologically, child's behaviors, consuming regular meals, effects on her/his

study, imitations of views). Not accomplished questionnaire was neglected.

Statistical Package of Social Science Software program version 26 used to analyze data; number and percentages for categorical variables whereas mean and standard deviation used for quantitative variables.

Results:

Figure1 reveals that 90.3% of children in the present study use smart phone devices while 9.6% not use these devices. Also This study shows predominance of boy 93(66%), 8 years age group and more 87(61.7%) with mean age 7±1.63 years as shown in Table (1).

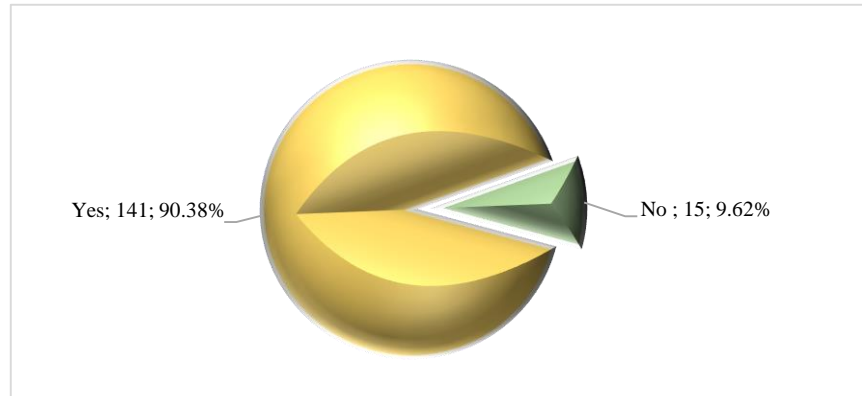


Fig 1; A model on Smartphone uses of early childhood in studied sample

Table1; Demographic variables of 141 children who use mobile devices:

| | Uses a mobile device /not | |
|--------------------------|---------------------------|------------|
| | No | % |
| Gender | | |
| Boy | 93 | 66.0% |
| Girl | 48 | 34.0% |
| Age group | | |
| <4 Years | 10 | 7.1% |
| 4-5 Years | 16 | 11.3% |
| 6-7 Years | 28 | 19.9% |
| >=8 Years | 87 | 61.7% |
| Mean ± SD (Range) | 7±1.63 years | 3-10 years |

37.6% of children have their own devices; the majority of them use it all day today (33.3%). Most parents (88.6%) supervise on their children while they are on the devices. As regard with reasons of devices uses; 62% for entertainment, 8.5% to avoid crying and less than this percentages by 2% to get rid of them. The study also found that 64.5% of children have addiction to use devices. Parents always can reduce number of hours that

child be on the device (80.8%) table (2). There are different applications used by children, highest percentages in current study prefer to use educational sport apps. (56%) followed by entertainment games (35.4%) then educational languages (32.6%), games (14.8%) different types of games and finally 4.2% use religious apps (Figure 2).

Table 2; General information about children on smartphone in studied sample.

| Variable | No. = 141 | % |
|--|-----------|-------|
| Device specific for the child: | 53 | 37.6 |
| Time spends on the device: | | |
| • Half hour | 7 | 4.96 |
| • One hour | 30 | 21.28 |
| • Three hours | 27 | 19.15 |
| • Five hours | 30 | 21.28 |
| • All day today | 47 | 33.33 |
| Supervision on child's device: | 125 | 88.65 |
| Causes to give the device to child: | | |
| • For entertainment | 87 | 61.7 |
| • To avoid crying | 12 | 8.57 |
| • To get rid of them | 9 | 6.83 |
| Addiction to use devices | 91 | 64.35 |
| Reduction of devices uses/ hours | 114 | 80.85 |

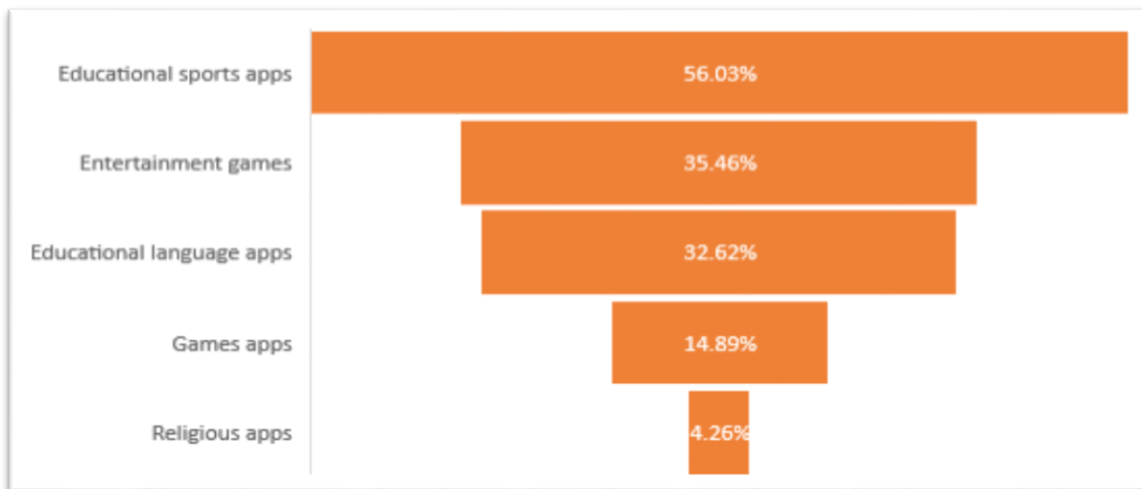


Fig 2: Applications more used by children.

The children were evaluated socially in present study and the results were as follows; 70% of children were normal, the remaining 12%, 7%, 6%, 3% open minded, nervous, audacious, and isolated, respectively. Fifty-eight of parents noticed variation in their child behaviors before and after using smartphone. Psychological effects detected in 17% of children. As regard with effects on children's study, 46% of them affected after using smartphone and for both sexes. On the other hands, approximately 10.6% of children have problems in their growth processes, as they lost regular meals (64.5%). Several children have simulation for scenes that they

watched in smart devices regardless whether it is valuable or not. The highest percentages gave for playing (82.3%), prayer (8.5%), killing (7.8%), fasting (4.3%) whereas very low percentages (1%) for stealing and 24% other behaviors (table 3).

Although current study focused on the use of smartphone by children, other devices also found to be used by children that they have the same effects on them; 33% of children on I pad, 26% on computer and the majority of them prefer mobile phone. Some children use more than one device (Figure 3).

Table 3: Effects of smartphones on children (n=141)

| | No | % | |
|--|-------------|------|-------|
| Social evaluation of child | Open minded | 18 | 12.76 |
| | Isolated | 5 | 3.54 |
| | Normal | 98 | 69.5 |
| | Nervous | 11 | 7.80 |
| | Audacious | 9 | 6.38 |
| Child's behaviors | | | |
| Noticed a difference in general child's behavior before-after uses | 82 | 58.2 | |
| Violent | 15 | 10.6 | |
| Nervous | 23 | 16.3 | |
| Tenacious | 74 | 52.5 | |
| Little Movement | 44 | 31.2 | |
| Psychological effects after using smart devices | 24 | 17.0 | |
| Any effects in child studies | 65 | 46.1 | |
| Growth problems | 15 | 10.6 | |
| Uses of smartphones keep him away from regular meals | 91 | 64.5 | |
| Imitation of some views watched in smart devices | | | |
| Playing | 116 | 82.3 | |
| Killing | 11 | 7.8 | |
| Stealing | 2 | 1.4 | |
| Fasting | 6 | 4.3 | |
| Others | 31 | 21.9 | |

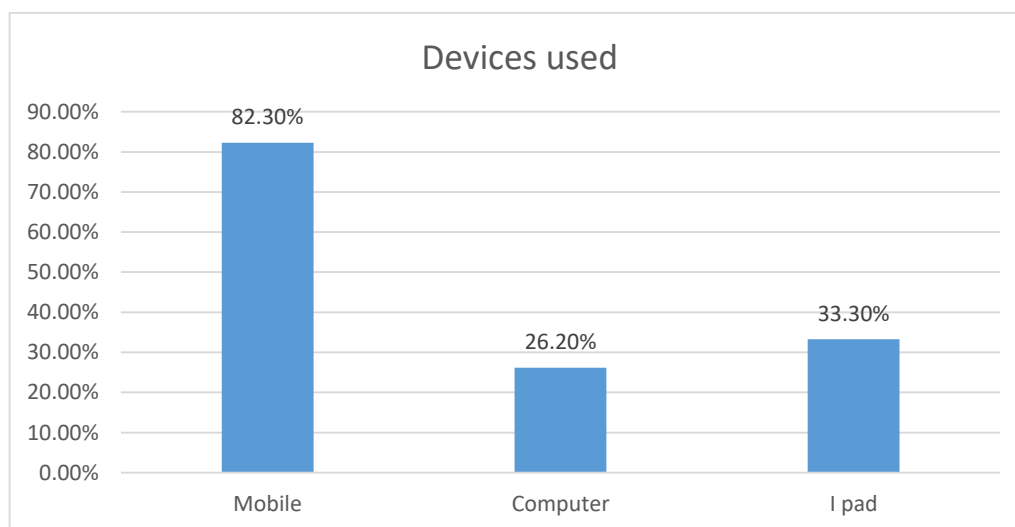


Fig 3. Type of devices used.

Discussion:

Excessive usage of smartphone regarding gender differences was controversial. Several studies showed that girls report significant association and they are more likely to engage smartphone's uses ramifications than boys regardless age group to which they belong¹¹⁻¹⁵. Nevertheless, other studies showed opposite findings with boys more than girls in using and therefore addictive to smartphones.¹⁶⁻¹⁸

In conclusion, same study found no clear gender effect¹⁹⁻²¹. A (90.3%) of children in the current study were found to be on the smartphone that was considered highest percentage. (66%) of them were boys whereas (34%) were girls. On the other hands, Dhiaa, S. and Tawfeeq, W. by performing study in Iraq in 2016 show similar findings were boys use devices in particular for gaming more than girls.²²

Eight to ten years old children show predominance among another age groups in present

research, study performed in Korea in 2017 revealed that children's smartphone usage was high in 5 years old children more than the others. Indeed, there is no significant differences between these two studies, both of them show increment usage of smartphone throughout childhood²³. A report in 2014 provides detailed evidence on smart devices uses among children aged 5-15 years, it provides evidence that 34% of them have their own tablet, rather than using devices belonging to their parents or school. In this research we conclude the same results as 37% of children have specific devices²⁴. Two studies in Korea carried out on 2-12 years old reported an unprecedented increment in the ownership of smart phones (72.2% & 73.3%) respectively²⁵. These variations may be due to rapidly growing of smart phone uses by Korean children than others.²⁶

The World Health Organization (WHO) has begun identifying the risks associated with children using smartphone technology. The organization not recommend using these devices for infant (less than 1 year of age) and children (between two- and four-years-old) should spend no more than an hour per day in front of a screen²⁷. Excessive use is sometimes measured as duration of usage and usage frequency²⁸. As regarding with the daily uses of smartphones by children the results was as follows; 4.96% used them for less than half an hour, 21.28% using them for one hour per day, 19.15% used them for three hours, 21.28% used them for five hours throughout the day, and 33.33% used them all day and that was the most common percentages than others. Whereas a study in 2017 by Cho and lee, showed completely different results as less than one hour/day of child's smartphone uses were the most common²⁹. This is because that 62% of parents in recent study allow their children to use smart phones for entertainment that make children prefer to be on devices for long time whereas in Cho and Lee study. 2017, parents allow this usage because of the children's amusement just (40%). Children have not reached the age to make rational decisions yet, so they can easily use and be addicted to smart phones; best way to minimize this problem is to supervise children when use this apparatus and that is done by 88.6% of parents in current study as well as try to diminishes hours spent on them (82%).³⁰

A routine and frequent use of smartphones appear to be associated significantly with behavioral problems in childhood³¹, current study confirmed these findings as changing in behaviors noticed in 58% before and after using them. One of the most important effects that rises in compatible with smartphone over use were psychological problems that detected in 17% of children, several studies showed same results³²⁻³⁹. Previous studies have showed a causal relationship between using smartphone and in particular following violent video games with increased violence behavior^{40, 41}. Ten percent of parents in study sample notice violence in their children.

Conclusions:

modern technology in particular smart devices is used more frequently among pre and school-aged children less than 10 years boys more than girls. The most favorite

applications were sports apps. Most parents observe changes in their child's attitude once they use smartphones.

Recommendation:

Smart devices must have been regularly used by kids under parental supervision at scheduled times during the week. After using these devices, parents should remain vigilant on their children' behavior. looking for alternate ways to entertain kids besides using their phones, such as innovative games and short stories.

Reference:

- 1- Sarwar, M., & Soomro, T. R. Impact of smartphone's on society. *European journal of scientific research*, 2013; 98(2): 216-226.
- 2- Lu, Y., Shi, Z., & Liu, Q. Smartphone-based biosensors for portable food evaluation. *Current Opinion in Food Science*, 2019; 28:74-81.
- 3- Jennifer, I. H. M.. Social implications of children's smartphone addiction: The role of support networks and social engagement. *Journal of Behavioral Addictions*, 2018; 7(2): 473– 481. <https://doi.org/10.1556/2006.7.2018.48>
- 4- Chiong, C., Shuler, C.. Learning: Is there an app for that. Investigations of young children's usage and learning with mobile devices and apps. New York, The Joan Ganz Cooney Center at Sesame Workshop, 2010 .
- 5- Kuss, D. J., Griffiths, M. D. Online social networking and addiction-A review of the psychological literature. *International Journal of Environmental Research and Public Health*, 2011; 8(9): 3528– 3552. <https://doi.org/10.3390/ijerph8093528>
- 6- Burnay, J., Billieux, J., Blairy, S., Larøi, F. Which psychological factors influence Internet addiction? Evidence through an integrative model. *Computers in Human Behavior*, 2015;43: 28–34. <https://doi.org/10.1016/j.chb.2014.10.039>
- 7-National Information Society Agency. Development of Korean Smartphone Addiction Proneness Scale for youth and adults. Seoul, Korea: Author. (2011).
- 8- <https://www.bankmycell.com/blog/how-many-phones-are-in-the-world>
- 9- Park, C., Park, Y. R. The conceptual model on smart phone addiction among early childhood. *International Journal of Social Science and Humanity*, 2014; 4(2): 147.
- 10- Kim, H. B. The study on the relationship between smartphone addiction and cyber-crime. *Korean Association of Addiction Crime Review*, 2013;3(2): 121.
- 11- Augner, C., Hacker, G. W.. Associations between problematic mobile phone use and psychological parameters in young adults. *International Journal of Public Health*, 2012;57(2): 437–441. doi:10.1007/s00038-011-0234-z
- 12-Billieux, J., Van der Linden, M., Rochat, L.. The role of impulsivity in actual and problematic use of the

- mobile phone. *Applied Cognitive Psychology*, 2008; 22(9): 1195–1210. doi:10.1002/acp.v22:9
- 13- Mok, J. Y., Choi, S. W., Kim, D. J., Choi, J. S., Lee, J., Ahn, H., Choi, E. J., Song, W. Y.. Latent class analysis on internet and smartphone addiction in college students. *Neuro- psychiatric Disease and Treatment*, 2014;10: 817–828. doi:10.2147/NDT.S59293.
 - 14- Schifferstein, H. N. J.. The perceived importance of sensory modalities in product usage: A study of self-reports. *Acta Psychologica*, 2006;121: 41–64. doi:10.1016/j.actpsy.2005.06.004.
 - 15- Walsh, S. P., White, K. M., Cox, S., Young, R. M. Keeping in constant touch: The predictors of young Austrians' mobile phone involvement. *Computers in Human Behavior*, 2011; 27(1): 333–342. doi:10.1016/j.chb.2010.08.011.
 - 16-Öztunç, M. Analysis of problematic mobile phone use, feelings of shyness and loneliness in accordance with several variables. *Procedia-Social and Behavioral Sciences*, 2013;106: 456– 466. doi:10.1016/j.sbspro.2013.12.051.
 - 17- Soni R, Upadhyay R, Jain M. Prevalence of smartphone addiction, sleep quality and associated behaviour problems in adolescents. *Int J Res Med Sci*, 2017;5(2):515–9.
 - 18- Kwak JY, Kim JY, Yoon YW. Effect of parental neglect on smartphone addiction in adolescents in South Korea. *Child Abuse Negl*, 2018; 77:75–84.
 - 19- Lopez-Fernandez O. Problem mobile phone use in Spanish and British adolescents: First steps towards a cross-cultural research in Europe. In: Riva G, Wiederhold BK, Cipresso P, editors. *Identity and relationships in online communities. The psychology of social networking*, Vol. 2. Warsaw: De Gruyter; 2015. pp. 186–201. <https://doi.org/10.1515/9783110473858>.
 - 20- Lee EJ, Ogbolu Y. Does parental control work with Smartphone addiction? A cross-sectional study of children in South Korea. *J Addict Nurs*. 2018; 29(2):128–38.
 - 21- Liu CH, Lin SH, Pan YC, Lin YH. Smartphone gaming and frequent use pattern associated with smartphone addiction. *Medicine (Baltimore)*. 2016; 95(28): 4068. <https://doi.org/10.1097/MD.0000000000004068>.
 - 22- Dhiaa S, Tawfeeq W A, Lafta, R K. Influence of Television Programs and Video Games on Aggressive Behavior among Children in Primary Schools in Baghdad. *Journal of Disease and Global Health*, 2016:141-152.
 - 23- Cho, K. S., Lee, J. M.. Influence of smartphone addiction proneness of young children on problematic behaviors and emotional intelligence: Mediating self-assessment effects of parents using smartphones. *Computers in Human Behavior*, 2017; 66: 303-311.
 - 24- New of Com Research. One in three children now has their own tablet computer; 2014. Available: [Http://Consumers.Ofcom.Org.Uk/News/One-In-Three-Children-Have-Own-Tablet/](http://Consumers.Ofcom.Org.Uk/News/One-In-Three-Children-Have-Own-Tablet/) (Accessed July 25, 2016).
 - 25- Jeong, S., Kim, H., Yum, J., Hwang, Y.. What type of content are smartphone users addicted to? SNS vs. games. *Computers in Human Behavior*, 2016; 54: 10Y17. doi:10.1016/j.chb.2015.07.035.
 - 26- Kim, J., Seo, M., David, P. Alleviating depression only to become problematic mobile phone users: Can face-to-face communication be the antidote? *Computers in Human Behavior*, 2015; 51:440Y447. doi:10.1016/j.chb.2015.05.030
 - 27- Guide Lines on Physical Activity, Sedentary Behavior and Sleep for Children under 5 Years of Age; 2019. <https://apps.who.int/iris/bitstream/handle/10665/311664/9789241550536eng.pdf?sequence=1&isAllowed=y>.
 - 28- Bae SM. The relationship between the type of smartphone use and smartphone dependence of Korean adolescents: National survey study. *Child Youth Serv Rev*. 2017; 81:207–11.
 - 29- Cho, K. S., Lee, J. M. Influence of smartphone addiction proneness of young children on problematic behaviors and emotional intelligence: Mediating self-assessment effects of parents using smartphones. *Computers in Human Behavior*, 2017; 66, 303-311.
 - 30- Park, C., Park, Y. R. The conceptual model on smartphone addiction among early childhood. *International Journal of Social Science and Humanity*, 2014; 4(2): 147.
 - 31- Hosokawa, R., Katsura, T.. Association between mobile technology use and child adjustment in early elementary school age. *PloS one*, 2018;13(7): e0199959.
 - 32- Perou R, Bitsko RH, Blumberg SJ, et al. Mental health surveillance among children--United States, 2005–2011. *Morb Mortal Wkly Report Surveill Summ*. 2013; 62(2):1–35 doi: su6202a1.
 - 33- Voelker R. Costly mental disorders affect millions of US children and teens. *JAMA*. 2013; 310(1):23. <https://doi.org/10.1001/jama.2013.7257>.
 - 34- Bardach NS, Coker TR, Zima BT, et al. Common and costly hospitalizations for pediatric mental health disorders. *Pediatrics*. 2014; 133(4):602–9. <https://doi.org/10.1542/peds.2013-3165>. 71.
 - 35- Shaffer D, Fisher P, Dulcan MK, et al. The NIMH diagnostic interview schedule for children version 2.3 (DISC-2.3): description, acceptability, prevalence rates, and performance in the MECA study. *Methods for the epidemiology of child and adolescent mental disorders study. J Am Acad Child Adolesc Psychiatry*. 1996; 35(7):865–77
 - 36- Panova T, Carbonell X. Is smartphone addiction really an addiction? *J Behav Addict*. 2018; 7:252–9. 10.1556/2006.7.2018.49 [PMC free article] [PubMed] [CrossRef] [Google Scholar]

- 37- Sohn S, Rees P, Wildridge B, Kalk NJ, Carter B. Prevalence of problematic smartphone usage and associated mental health outcomes amongst children and young people: a systematic review, meta-analysis and GRADE of the evidence. *BMC Psychiatry*. 2019; 19:356. 10.1186/s12888-019-2350-x [PMC free article] [PubMed] [CrossRef] [Google Scholar]
- 38- Fischer-Grote L, Kothgassner OD, Felnhofer A. Risk factors for problematic smartphone use in children and adolescents: a review of existing literature. *Neuropsychiatrie*. 2019; 33:179–90. 10.1007/s40211-019-00319-8 [PMC free article] [PubMed] [CrossRef] [Google Scholar]
- 39- Twenge, J. M, Campbell, W. K.. Associations between screen time and lower psychological well-being among children and adolescents: Evidence from a population-based study. *Preventive medicine reports*, 2018;12, 271-283.
- 40- Huesmann, R., Moise-Titus, J., Podolski, C., Eron, L.D. Longitudinal relations between children's exposure to TV violence and their aggressive and violent Behavior in young adulthood: 1977–1992. *Dev. Psychol*, 2003; 39 (2): 201–221. <http://dx.doi.org/10.1037/0012-1649.39.2.201>.
- 41- Lemmens, J.S., Valkenburg, P.M., Peter, J. The effects of pathological gaming on aggressive behavior. *J. Youth Adolesc*, 2011;40,\; 38–47. <http://dx.doi.org/10.1007/s10964-010-9558-x>.