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Original Research Paper

The Effect of COVID-19 on the Uses and Addiction of Electronic Gadgets among Children; A Survey-based Study among the Parents in Riyadh

Khalid Alqarni[1], Ahmed Alghamdi[1], Hamad Aljatele[1], Abdullah Almugren[1], and Zeeshan Qamar[2]*

[1]General dentists, Riyadh, Saudi Arabia.
[2]Assistant professor, OMFS department, Riyadh Elm University, Saudi Arabia.

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Introduction: More and more children and adolescents spend time on the Internet to study, play online games, shop, watch movies, use social media, and chat. These activities are often used to reduce stress and anxiety or to alleviate depressed mood, especially in these COVID times. Materials and methods: This is a cross-sectional study conducted among the parents in Riyadh using an online survey. Parents from all socioeconomic and cultural backgrounds having at least 1 child between ages 6 and 14 were requested to fill up the survey. Results: A total of 519 parents responded to the survey, which included 36.8% of parents having 1-2 and 63.2% having 3 or more children. Regarding the age of children, 30.7% of parents reported their children's age between 0 and 6 years and 69% had 7-16 years. Conclusion: Prevalence of electronic device use is high among Saudi children.

Keywords: Addiction, electronic devices, COVID-19

INTRODUCTION

WHO declared the coronavirus disease2019 (COVID-19) outbreak, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), to be a pandemic on March 12, 2020.On March 18, 2020, the UN Educational, Scientific and Cultural Organization estimated that 107 countries had implemented national school closures related to COVID-19, affecting millions of children and young people. This situation had rapidly escalated from 29 countries with national school closures a week before (Viner et al., 2020; Van Lancker & Parolin, 2020).

In China, in order to effectively cooperate with the government's epidemic prevention of work, more than 220 million children and adolescents were confined at home and informed to postpone the start of the spring semester until further notice. Meanwhile, online studying courses which were delivered by TV broadcasts and the Internet have been opened gradually to students to guarantee their needs of learning, according to a guideline released by China's Ministry of Education. These effects can be compacted by adverse consequences of reduced vision, as well as unconscious smartphone/Internet addiction, and may further contribute to mental distress in children and adolescents (Duan et al., 2020; Soni, Upadhyay & Jain, 2017).

The rapid rise of the Internet age has popularized Internet use throughout the world. More and more children and adolescents spend time on the Internet to study, play online games, shop, watch movies, use social media and chat. These activities are often used to reduce stress and anxiety or to alleviate depressed mood, especially in these COVID times. Internet use, in a reasonable way, is beneficial, but excessive and uncontrolled Internet use may develop into Internet addiction (IA), which is defined as an individual's inability to control his/her use of the Internet. IA is a serious public health problem in the world, especially in Asia. In China, the prevalence of IA has been reported as 2.4% to 10% and around 30% in Saudi Arabia (Dong et al., 2019; Saquib, 2020).

Due to the prolonged lockdown due to COVID-19, it is important to assess gaming addiction among Saudi adolescents for multiple reasons. Saudi Arabia is a leading Internet user(90% of the population uses the Internet) among Arab countries. It is estimated that up to a third of Saudis are addicted to the Internet(range = 20–30%). Since online gaming

*Corresponding Email: zeeshan.qamar@riyadh.edu.sa

addiction forms a significant portion of Internet-based addictions, it is therefore likely that a significant portion of Saudi adolescents (age: 10–19) would also be addicted to gaming. These adolescents constitute 15% of the total population and use various electronic gadgets and have easy access to Internet connections (Rajab et al., 2020; Basol & Kaya, 2018).

STUDY HYPOTHESES

The prevalence of electronic gadgets has increased among children during the lockdown period.

AIMS OF THE STUDY

- To determine the prevalence of electronic gadget use among the children in Riyadh.
- To assess the extent of increase/decrease of prevalence and factors associated with it.

MATERIALS AND METHODS

Study Design

This is a cross-sectional study conducted among parents in Riyadh using an online survey.

Study Sample

Parents from all socioeconomic and cultural backgrounds having at least 1 child between ages 6 and 14 were requested to fill up the survey.

Study Instrument

Online questionnaire (in Arabic as well as in English)was constructed consisting of questions related to personal and demographic data followed by questions linked to their children's habits of using electronic devices.

Instrument Validity and Reliability

A pilot study was conducted by sending the survey to 20 participants and the data was inserted in SPSS version 22 to determine the reliability by using Chronbach's coefficient alpha (value equals 0.812). Validity of the questionnaire was tested by sending it to experienced researchers in REU, but no changes were made.

Statistical Analysis

Collected data was analyzed using SPSS version 22, where descriptive as well as inferential statistics were conducted. Comparisons between groups were made with the value of significance kept under 0.05 using the Chi-square test.

RESULTS

A total of 519 parents responded to the survey, which included 36.8% of parents having 1-2 and 63.2% having 3 or more children. Regarding the age of children, 30.7% of parents reported their children's age between 0 and 6 years and 69% had 7-16 years. Table 1 shows the frequencies of responses inquired by the study participants. It was noted that 68.6% of parents had given their children a type of electronic device, the most common one of them was smartphone (50.3%), which they used mostly to watch YouTube videos (39.9%) and the most amount of daily usage was 6+ hours reported by 37.2% of parents. 60.7% revealed that they tried to take electronic devices from their children with 50.9% reporting their children becoming highly nervous and upset.

Table 2 shows the comparisons of responses among the parents on the basis of the number of children. A few statistically significant differences were noted when inquired about the children having electronic devices (p-value: .000), kind of device (p-value: .000), major purpose of electronic device use (p-value: .000), time of device use (p-value: .000), children using more than one device (p-value: .011), children using a device while eating (p-value: .000) and children getting nervous quickly as a sign during COVID-19 (p-value: .019).

Table 3 shows the comparisons of responses among the parents on the basis of children's age. Statistically significant differences were observed when inquired about the number of children using electronic devices (p-value: .000), kind of device (p-value: .000), major purpose of electronic device use (p-value: .000), time of device use (p-value: .000), children using more than one device (p-value: .000) and children using a device while eating (p-value: .001)

DISCUSSION

This study aimed to determine the experiences of Saudi parents towards the use of electronic devices among their children during the pandemic period of COVID-19. It can be noted from the findings that majority of the children use smartphones and watch YouTube for longer periods of time. We compared these results with another study conducted in Michigan, USA by Radesky et al., (2020) which reported that the most common electronic device used was tablets instead of a smartphone, with YouTube being watched by majority of children.

It was also observed in our findings that more than 73% of parents reported their children being addicted to electronic devices while eating and before sleep, hence increasing the chances of sleep pattern disturbance. Another investigation done in Japan by Horiuchi et al. (2020) reported that the children were addicted to the use of electronic devices before going to sleep and showed a slight change in sleep behavior.

We also noted in our findings that the children had increased their demands for using electronic devices during the pandemic more than before. Moreover, nervousness and anxiety were found to be the most commonly occurring behaviors as compared to sleep disturbance and mood swings. When these findings were compared with another study conducted in Kolkata, India by Dutta et al., (2020), it was noted that sleep disturbance was found to be highly prevalent among children using smartphones for longer durations. Another difference in these two studies was that we utilized data from all age groups of children, which was not the case with this Indian study as they used information from 8 to 16-year old children.

Another study conducted by Arufe-Giraldez et al., (2020) among Spanish children aged under 4 years found that children used television more than smartphones and tablets, which was different from what we found as majority of our participants opted for smartphones. Finally, a Chinese-based study reported a higher prevalence of anxiety, sleep disturbance, and nervousness among children as reported by their parents (Tso et al., 2020), which is similar to what we found in our study.

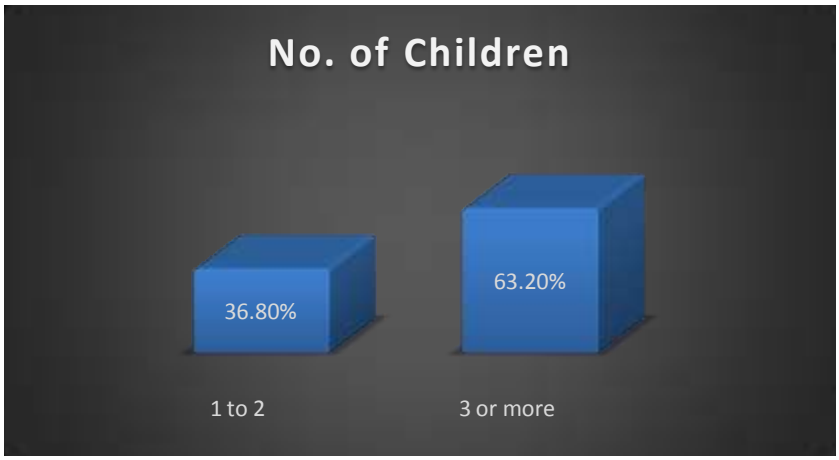

Figure 1: Number of participants' children

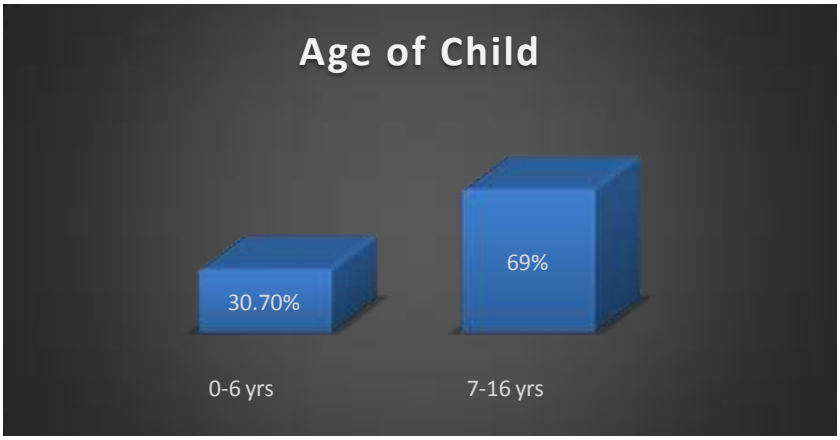

Figure 2: Age of participants' children

Table 1: Frequencies of survey responses by the study participants

Survey Questions	Response Frequencies
How many of your children have electronic device	All of them: 68.6% Only the elders: 21.6% No one has: 9.8%
What kind of device they have	Smartphone: 50.3% Tablet: 32.4% Video games: 17.3%
Major purpose of electronic device use	Playing games: 36.6% Watching YouTube: 39.9% Social Media: 23.5%
Did they start to use their devices more with the COVID-19	Yes: 83.6% No: 16.4%
Did they ask you to buy new devices during the COVID -19 period	Yes: 52% No: 48%
Did they keep on asking you to get new games on their devices during the COVID -19 period	Yes: 62.8% No: 37.2%
For How long they use their appliance per/day	2 hours: 13.9% 2-4 hours: 22.4% 4-6 hours: 26.6% 6+ hours: 37.2%
Did your children start to open more than device at the same time	Yes: 51.3% No: 48.7%
Do they use their device while eating, or in bed before sleeping	Yes: 73.8%

	No: 26.2%
Did you recognize that your children do not respond to your questions while using their devices	Yes: 73.4% No: 26.6%
Does your child show any of the following signs during the COVID -19 period	Anxiety: 13.3% Getting nervous quickly: 37.8% Sleep disturbance: 20.4% Bad mood: 18.9% Saying bad words: 9.6%
Did you try to take their devices out during the period of COVID -19 to limit their uses?	Yes: 60.7% No: 39.3%
What was their reaction to the withdrawal?	No reaction: 22.9% Highly nervous and upset: 50.9% Looking for any alternative devices to use: 26.2%

Table 2: Survey responses comparison on the basis of the number of children

Survey Questions	1-2 children	3+ children	p-value
How many of your children have electronic device	All of them: 52% Only the elders: 22% No one has: 19%	All of them: 74% Only the elders: 21% No one has: 4%	.000
What kind of device they have	Smartphone: 34% Tablet: 46% Video games: 20%	Smartphone: 60% Tablet: 24% Video games: 16%	.000
Major purpose of electronic device use	Playing games: 30% Watching YouTube: 57% Social Media: 13%	Playing games: 40% Watching YouTube: 30% Social Media: 30%	.000
Did they start to use their devices more with the COVID-19	No statistically significant association		.221
Did they ask you to buy new devices during the COVID -19 period	No statistically significant association		.928
Did they keep on asking you to get new games on their devices during the COVID -19 period	No statistically significant association		.190
For How long they use their appliance per/day	2 hours: 25% 2-4 hours: 28% 4-6 hours: 28% 6+ hours: 20%	2 hours: 7% 2-4 hours: 19% 4-6 hours: 26% 6+ hours: 48%	.000
Did your children start to open more than device at the same time	Yes: 44% No: 56%	Yes: 56% No: 44%	.011
Do they use their device while eating, or in bed before sleeping	Yes: 64% No: 36%	Yes: 80% No: 20%	.000
Did you recognize that your children do not respond to your questions while using their devices	No statistically significant association		1.000
Does your child show any of the following signs during the COVID -19 period	Anxiety: 8% Getting nervous quickly: 44% Sleep disturbance: 20% Bad mood: 17% Saying bad words: 11%	Anxiety: 17% Getting nervous quickly: 34% Sleep disturbance: 21% Bad mood: 20% Saying bad words: 9%	.019
Did you try to take their devices out during the period of COVID -19 to limit their uses?	No statistically significant association		.458
What was their reaction to the withdrawal?	No statistically significant association		.335

Table 3: Survey responses comparison on the basis of age of children

Survey Questions	0-6 years	7-16 years	p-value
How many of your children have electronic device	All of them: 54% Only the elders: 28% No one has: 18%	All of them: 75% Only the elders: 19% No one has: 6%	.000
What kind of device they have	Smartphone: 31% Tablet: 50% Video games: 19%	Smartphone: 59% Tablet: 24% Video games: 17%	.000
Major purpose of electronic device use	Playing games: 35% Watching YouTube: 61% Social Media: 4%	Playing games: 38% Watching YouTube: 31% Social Media: 32%	.000
Did they start to use their devices more with the COVID-19	No statistically significant association		.094
Did they ask you to buy new devices during the COVID -19 period	No statistically significant association		.153
Did they keep on asking you to get new games on their devices during the COVID -19 period	No statistically significant association		.375
For How long they use their appliance per/day	2 hours: 31% 2-4 hours: 28% 4-6 hours: 26% 6+ hours: 14%	2 hours: 6% 2-4 hours: 20% 4-6 hours: 27% 6+ hours: 48%	.000
Did your children start to open more than device at the same time	Yes: 36% No: 64%	Yes: 58% No: 42%	.000
Do they use their device while eating, or in bed before sleeping	Yes: 64% No: 36%	Yes: 78% No: 22%	.001
Did you recognize that your children do not respond to your questions while using their devices	No statistically significant association		1.000
Does your child show any of the following signs during the COVID -19 period	No statistically significant association		.105
Did you try to take their devices out during the period of COVID -19 to limit their uses?	No statistically significant association		.172
What was their reaction to the withdrawal?	No statistically significant association		.681

CONCLUSIONS

- Prevalence of electronic device use is high among Saudi children.
- Parental attitude towards this addiction needs to be addressed through awareness.
- More children were significantly associated with the increased use of electronic devices.
- Older age groups of children were found to be more addicted to the use of electronic devices.

CONFLICT OF INTEREST

There is no conflict of interest among the authors with regard to this publication.

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