

Vol 45 (1) March , 2021

Print: ISSN 0304 4904
Online: ISSN 2305-820X



PAKISTAN PEDIATRIC JOURNAL



A JOURNAL OF PAKISTAN PEDIATRIC ASSOCIATION

Indexed in EMBASE/Excerpta Medica, Index Medicus WHO
IMEMR & Global Health/CAB Abstracts and UDL-EDGE Products and Services

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ORIGINAL ARTICLE

Screen Time in Preschool Children (2-5 years) in a Locality of Sargodha; Influencing Factors and Parental Perceptions

MAZHAR NAZIR CHATTHA, HINA BATOOL SIDDIQUI, NAYYAR AHMED, Muhammad Idris Mazhar, Saman Fatima, Muhamad Musarrat Jamal

Pak Pediatr J 2021; 45(1): 97-102

ABSTRACT

Objective: To find out the daily screen time in children 2-5 years old along with predisposing factors, quality of screen time and knowledge of parental perceptions of their children regarding screen time.

Study Design: Cross sectional descriptive study.

Place and Duration of Study: A locality of Sargodha; from 20 October 2019 to 20 December 2019.

Material and Methods: Parents of 200 children aged 2-5 years were interviewed according to a questionnaire after informed consent.

Results: Mean daily screen time was 2.42 hours+/-1.17 hours. Screen time was spent on television watching and electronic devices. 175 parents were of the view that observed screen time of > 2 hours to be normal. Prolonged screen time was observed with increasing socioeconomic status and the absence of parental limits for screen time.

Conclusion: The screen time in preschool children was far above the recommended time of up to one hour. Parents had no perception of recommended duration of screen time and its effects on children's psychosocial development.

Key Words: *Screen time, Preschool children, Pakistan*

Correspondence to:

Muhammad Idris Mazhar
Department of Pediatrics, Islam
Medical College, Sialkot

E-mail:
dridrismazhar@yahoo.com

Received 29th June 2020
Accepted for publication
15th August 2020

INTRODUCTION

Screen time is the time spent viewing screen of television, smart phone, tablets, DVD or other electronic media. Screen time has markedly increased over the last decade. It is mostly due to easy and increased availability of smart phones and other electronic media as well as internet. Even smart phone is available in most of families belonging to lower socioeconomic groups. The awareness regarding increased screen time in infants and young children is being recognized in developed countries and its effects on children are

being highlighted. Even the preschool children i.e. less than 5 years of age are having excessive screen time.

The World Health Organization and American Academy of Pediatrics have recommended screen time up to one hour in children 2 to 5 years age and no screen time for children less than 2 years of age.^{1,2} The screen time should be of high quality and under supervision.

2 to 5 years of age is the period of critical development of the brain. Excessive screen viewing has been reported to have negative

effects on the cognitive abilities of children.³ Also, excessive screen exposure may consume the time that would have otherwise been spent in healthy social interactions and physical activity. It is therefore essential for parents to design and engage in interactive activities with their child during this critical period of development.⁴

There are multiple factors which may influence screen time in children. In order to make an effective intervention, it is necessary to look carefully into those factors. The factors include age of the child, physical activity, socio-economic status, maternal education, maternal occupation, family structure, parenting values and parental perception of their child's screen time.⁵

It has become increasingly important to find out the screen time and its influencing factors in children, especially in young children who are in critical period of development. Currently the local data on this important aspect is scanty. No local guidelines can be offered for children age from 2-5 years on this important issue.

MATERIAL AND METHODS

This was a descriptive cross sectional study carried out in a locality of Sargodha. Data was collected from 20 October 2019 to 20 December 2019. Children of age group 2-5 years and both gender were included in study. Children with chronic illness, cerebral palsy and developmental delay were excluded. Data was collected by convenient sampling method, from parents of children reporting to general OPD and pediatric OPD of PAF hospital after informed consent. Data was recorded according to a questionnaire by medical officer. After data collection parents were informed about the recommended duration of screen time and hazards of excessive screen time in this age group. The data thus obtained was entered in SPSS 21 and analyzed.

RESULTS

200 children were included in the study. 104 (52%) were female 96 (48%) were male. Mean age of children was 3.53 years (SD \pm 0.97). 96 children (48%) were 3 to 4.5 years old. Mean screen time was 2.42 hours (SD \pm 1.17). 170 children (85%) had screen time of more than 2 hours. 17 children (8.5%) had zero screen time. The reason offered

were religious in 5 cases, non-availability of internet (5 cases) and parental refusal in 7 cases.

Electronic devices used in screen time are shown in table 1. With respect to quality of viewing, 95 (42.5%) children viewed cartoons only (75) or mostly cartoons (20). 18 (9%) children viewed video games (6) or mostly games (18). 10 (5%) children used educational apps only (3) or mostly educational apps (in 7) whereas 38 (19%) children viewed cartoons, games and occasionally educational apps.

TABLE 1: Usage of screen device with respect to

Age years	Mobile Use	TV Use	Mobile/TV equally	No screen time	Total
2	10	10	4	1	25
3	15	21	16	7	59
4	34	19	10	6	69
5	23	10	11	3	47
Total	82	60	41	17	200

Age of children 141 (70.5%) mothers of these children were housewives and 59 (29.5%) mothers were working elsewhere. 174 (77%) parents believed that their child was not having excessive screen time as shown in table 2. There were no rules for use of screen time in 54 (27%) cases. Again no rules were associated with increased screen time (p value .0157). Screen time was supervised in only 92 cases (46%).

TABLE 2: Screen time in hours/day and its parental perception

Screen time in hours	No Screen time	Parental perception normal	Parental perception increased	Total
0	17	0	0	17
1	0	13	0	13
2	0	78	2	80
3	0	53	0	53
4	0	26	6	32
5	0	4	1	5
Total	17	174	9	200

The mean of monthly income was Rs. 57,990 \pm 16,560 in this study. The screen time with respect to income is shown in table 3.

TABLE 3: Monthly family income and screen time in hours/day

Screen time in hours	Income Up to 20K	Income 21-30K	Income 31-40K	Income 41- 50K	Income 51-60K	Income 61-70K	Income 71-80K	Income 81-90K	Total
0	1	2	6	7	1	0	0	0	17
1	0	2	0	1	3	2	2	3	13
2	0	2	8	27	11	14	13	5	80
3	0	1	6	24	4	9	8	1	53
4	1	2	5	10	4	0	7	3	32
5	0	0	1	3	1	0	0	0	5
Total	2	9	26	72	24	25	30	12	200

Regarding parental knowledge of associated advantages, 12 (6%) parents said there was no advantage, 89 (44.5%) parents thought about increased knowledge and vocabulary and 78 (39%) parents viewed that child spends the time by him/herself with little disturbance for parents.

Regarding disadvantages, 121 (60.5%) parents mentioned about habit forming nature and child's aggressive behavior when he/she was denied the access. 28 parents (14%) said it affects vision and 22 (11%) said child learned unacceptable things. Sleep was considered adequate in all children.

DISCUSSION

Our study indicates that 85% of the children had a screen time of more than 2 hours/day. This observation was far beyond the recommended screen time of 1 hour/day in this age group. A study in Wah Cantt, revealed 54 of 92 children (3-5 years) had excessive screen time, using more than 2 hours as the cut off point for excessive screen time in this study.⁶ 63.9% of children 2-5 years had excessive screen time with a mean of 144.13 minutes/day in an Iranian study.⁷ This is similar to a study conducted on preschoolers in America which indicated a screen time of 4.1 hours on average.⁸ In an Australian study, average screen time was 113 min/day.⁹ 31% (n 896) were using smart phones for more than 2 hours 5 to 15 years old children in Lahore.¹⁰ A study conducted on students in allied health science departments of Dow University of Health Sciences Karachi revealed that 33.5% of students were using mobile phone for 1-2 hours and 11.2% were using mobile phone for more than 2 hours.¹¹ 68% of adolescents aged 10 to 19 years and 52.5% aged 11 to 13 years were using screen

based media for more than 2 hours in Delhi and Tamil Nadu respectively.^{12,13}

A review article has shown that excessive television screen time is associated with maximal negative effects on cognition and physical activities.¹⁴ Over time, an increase in usage of smart phones from earlier on in life has been observed due to increased availability and accessibility. This is also in compliance with our study where 41% children have been observed to use smart phones as compared to television screen-time which accounts for 30% of the total.

As per the quality of screen time, 47.5% of the total study population spent their time watching cartoons. Unfortunately, the usage of screen time for exclusively/mostly educational activities, accounted for only 5% of the total study population.

Our study also revealed a positive relationship between quality screen time and higher level of maternal education. 5% children out of 200 were reported to use educational apps (exclusively in 3 and mostly in 7). 19% were reported to use educational apps occasionally in conjunction with other media. This trend was similar to that seen in a study in America on children aged 6 months to 5 years of age, where mother's level of education was positively correlated to educational media use.¹⁵ This may be because maternal education is directly related to better awareness of screen time and its detrimental effects.

There was no significant relationship of screen time to occupational status of the mothers, (whether house wives or working women) in our study with a p value of 0.12.

Prolonged screen time was seen in families with higher monthly income. 13 families in our study had monthly income of less than Rs. 40,000/month and among them, 4 had no screen time at all. This may be due to decreased accessibility of smart phones/gadgets. Screen time was increased in an American study in lower socioeconomic group with less physical activity as compared to upper socioeconomic group.¹⁶

There was no significant relationship between increased screen time with age or gender of children and number of siblings in our study. In a Canadian study, girls from lower socio-economic status had increased screen time as compared to girls from higher socioeconomic status.¹⁷

Sleep was not disturbed in children in our study. This appears contrary to a study from English children 6 months to 36 years old, finding that increased screen time was associated with decreased night time sleep and late onset of sleep.¹⁸

Screen time was supervised in 46% children. The supervision here refers to the parents checking on the child time and again so as to keep an eye on the type of content that they are viewing. Interactive screen time was observed in only 5% children. The developing brain of young children responds better to interactive experiences than to mere digital learning without any parental interaction as recommended by American Academy of Pediatrics.²

Assessment of parental perception of screen time revealed that 174/200 cases believed their children were having normal screen time. About 66% parents knew about recommended screen time of up to 1 hour in this age group in a multicenter study in Europe.¹⁹

24% had no rules for screen time resulting in increased screen time in our study. Screen time is increased when there are no or less rules set by parents to restrict screen time as seen a study in preschoolers in Finland.²⁰ In an Australian study in preschoolers the presence of rules for screen time resulted in decreased screen viewing.²¹

When inquired about advantages of screen time, 44.5% said that it tends to improve the child's knowledge and vocabulary. 39% parents were of the opinion that engaging the child in screen

time/media use helped distract the child allowing them to perform household chores more conveniently. In a Dutch study in young children the screen time was increased when parents think that it provides a moment of rest.²² A study in Belgium revealed that 48.1% parents admitted use of TV by children so that they can do their chores easily.²³

Regarding disadvantages, 60.5% parents reported that the child responded aggressively when not given the gadgets. Studies have reported an upsurge in screen dependency disorders (SDDs) over time which are characterized by an addictive tendency, withdrawal symptoms, failure to decrease screen time and a lack of motivation to indulge in activities not involving the screen.²⁴

CONCLUSION

The screen time in children (2-5 years) was found far above the recommended time in our study. Most children spent time on cartoons and games which was low quality screen time. The use of educational apps was seen in a very small group of children. In most cases, the screen time was unsupervised and of non-interactive type. Parents had no perception of recommended duration of screen time and its effects on child's psychosocial development, especially during the critical developmental period.

LIMITATION OF THE STUDY

The study has limitation of small sample size of 200 children and parents and thus not a complete representative of the community. A larger study should be carried out comprising all socio-economic groups to have a true picture in the community.

RECOMMENDATIONS

Parents need to be educated on the recommended screen time for their child and the detrimental effects that excessive screen time poses on a child's psychosocial health. Particularly important in this regard is the role of a pediatrician who can guide parents on the subject. It is necessary to limit screen time via appropriate interventions and to create interactive educational apps to make screen time productive. A policy to

guide the adequate use of screen time in children might help set things into perspective.

Conflict of Interest: All authors declare no conflict of interest.

Grant Support & Financial Disclosures: It was a self-financed study. No support or financial assistance was taken from any source.

Authors' affiliation

Mazhar Nazir Chattha, Muhammad Idris Mazhar, Muhamad Musarrat Jamal
Department of Pediatrics, Islam Medical College, Sialkot

Hina Batool Siddiqui, Nayyar Ahmed,
Department of Pediatrics, Mushaf PAF Hospital, Sargodha,

Saman Fatima,
Student, KEMU

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