

## Impact of Screen Time on Behaviour Problems of School Children

Sandhya Shivakumar and Kanchana Mohannathan

Women's Christian College, Chennai

Excessive screen time among children has become a pressing public concern. It can have a negative impact on the child's well-being. To study the screen time and its usage among children in the age group of 4-10 years and the differences due to their age and gender. In addition, the present study also examines the impact of screen time on behavior problems (internalizing and externalizing behaviors) among them. Mothers (n=416) of 4-10 years old children completed the personal data sheet and Strength and Difficulties Questionnaire (SDQ) (Goodman, 1997). Chi-square and Simple linear regression were carried out using SPSS 28. 83.4 % viewed screen devices "everyday" and 70% of the children had access to more than 3 devices at home. Only 27% of the children had screen time below 2 hours per day. Findings showed that the child's screen time significantly predicted internalizing behaviors. Child's age was strongly associated with screen time. High screen time of children contributes to behavioral problems. Parental involvement in monitoring screen use must be an essential part of psychosocial interventions in educational settings/clinical practice.

**Keywords:** Excessive screen use, screen time, problem behaviors, internalizing and externalizing problems

Excessive screen use among young children is a global and growing concern. In India, most children are exposed to screen by 18 months of age (Gupta et al., 2021). Some of the harmful effects of high screen time includes obesity, disturbed sleep, delayed speech and cognitive development, ocular problems, body image issues and emotion regulation difficulties (Gupta et al., 2021; Jeevannavar, Suryawanshi, & Patil, 2020; Srikala, & Kumar, Kishore, 2010). Positive effects include, gaining knowledge, learning new skills, improving social interaction, promoting emotional well-being by learning about moral values and identifying emotions at a younger age. Many global organizations such as American Academy of Pediatrics, World Health Organization, and Indian Academy of Pediatrics, Indian Psychiatric Society have listed screen use recommendations and guidelines for parents

to caution them against the harmful effects of excessive screen exposure and encourage its regulated use for children (Gupta et al., 2021).

The younger years of a child's brain development is a critical period for the development of cognitive and emotional abilities as is likely to influence their future adult behaviours (Rodriguez and Estrada, 2021). Many studies have reported a relationship between excessive screen time and behaviour problems, i.e., internalizing and externalizing behaviours. "Externalizing behaviours", can be defined as behavioural problems characterized by acting out, aggression, attentional difficulties, oppositional behaviours, hyperactivity and temper tantrums. They involve outward behaviour rather than inner emotions. (Thackery & Harris, 2002; Nehzad et al.,

2011). On the other hand, internalizing behaviours, refers to problem behaviours due to over-control of emotions within self, such as anxiety, depression, somatic complaints, social withdrawal from others and shyness. (Nehzad et al., 2011; Achenbach & Rescorla, 2001).

Among children having high screen time in both from rural and urban areas, Ilamparithi and Selvakumar (2017) in their study identified externalizing and internalizing behavioural problems. Muppalla, Vuppalapati, Pulliahgaru and Sreenivasulu (2023) in their systematic review found internalizing and externalizing behavioural problems among younger children below 6 years of age in India due to high screen time. Similar findings have been demonstrated by studies in other parts of the world (Bahadur & Karace, 2022; Xiang et al., 2022; Eirich et al., 2022). High screen time increased the risk of disruption in the child's self-regulatory capacities (Eirich et al., 2022). It has also been associated with lower levels of emotional understanding, depressive symptoms, anxiety and disturbed sleep (Muppalla, Vuppalapati, Pulliahgaru & Sreenivasulu, 2023). Hence, excessive screen time interfering with the development of these essential skills are likely to increase the risk of socio-emotional difficulties as well as behavioural problems among children (Uzundađ, Altundal & Keppafođlu, 2022).

In this light, the objective of the present study was to estimate the extent of the problem of excessive screen time and evaluate its impact on behavioral problems among young children in Chennai, South India. Null hypotheses for the present study were adopted as findings associated with screen time and behavioral problems among school going children in the Indian context are scarce. Hence, the present study aims to explore this relationship and identify socio-demographic differences, if any.

## Hypotheses

The following hypotheses were tested in the present study

- 1) Child's screen time will not significantly predict internalizing and externalizing behaviours ( $H_01$ )
- 2) There will be no significant gender difference in child's screen time
- 3) There will be no significant difference in child's screen time based on child's age ( $H_03$ )

## Method

### Sample

The sample comprised of mothers of children between 4-10 years of age from 4 schools in Chennai, selected through systematic random sampling. The inclusion criteria were mothers' minimum education of Class X, fluency in reading and writing knowledge of Class VIII English, and children must be enrolled in English Medium Central Board of Secondary Education (CBSE) schools. Lastly, children must have exposure to screen time of any duration and use at least one screen device such as laptop, phone, television, i-pad.

### Tools

The survey was completed within 30 minutes. The tools used were the Personal Data Sheet which included questions regarding the socio-demographic information and children's screen time and pattern of use. Strength and Difficulties Questionnaire: The behavioural problems among children were measured using Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997). It is a standardised 33 item scale that assesses the child's internalising and externalising behaviours. The internal consistency was found to be Cronbach's alpha 0.73 and test-retest reliability was found to be 0.62 after 4-6 months. It also has good psychometric properties in varied cultures and languages

and demonstrated use in Indian studies (Bele, Bodhare, Valsangkar, & Saraf (2013); McDaniel, & Radesky, 2018).

### Procedure

A cross-sectional survey was carried out and data was collected from 1118 mothers among 4 schools in Chennai of which 416 valid responses were included for the study. Based on the list of schools with a curriculum of Central Board of Secondary Education (CBSE) they were randomly chosen from the East, West, North and South zones of Chennai. The researcher collected data from the schools which provided permission for the study. In the after-school hours, the researcher met the mothers and collected the information from them. The participants were informed regarding the purpose of the study, and obtained informed consent from them for their participation.

### Results

Table 1. The characteristics of the sample

Sample characteristic		% (n=416)
Gender of the child	Male	48%
	Female	52%
Age of the child	4-6 years	47%
	7-10 years	53%
Mother's Education	Undergraduate and below	17%
	Graduate	38%
	Postgraduate or above	45%

Mother's age	30 years or less	12%
	40 years or less	79%
	Above 40 years	9%
Mother's employment	Working	54%
	Not working	46%

Table 2. Participants screen use pattern

Screen use characteristic		% (n=416)
Number of devices at home	1-3 devices	27%
	>3 devices	73%
Frequency of screen use per week	1 day or less per week	3%
	2-3 days per week	6%
	4-5 days per week	8%
	Everyday	83%
Ownership of screen device by the child	Yes	12%
	No	88%
Child's screen time per day	<2 hours	27%
	>2 hours	73%

From Table 2, it can be observed that majority of the children have screen time above 2 hours per day. 73% of them had access to more than 3 devices at home and 84% of them had screen exposure "everyday" as compared to 3% whose parents reported the child's screen exposure to be "one day or less per week".

Table 3. show if child's screen time significantly predicts internalizing and externalizing behaviours of children

Predictor variable	Criterion variables (Internalizing behaviours)		Externalizing behaviours			
	B	SE (B)	p	B	SE(B)	p
Constant	3.724	0.267	0.000	4.740	0.250	0.000
Child's screen time	0.003	0.001	0.037*	0.001	0.001	0.264

Table 3 indicates that it is significant at the  $p < 0.01$  level. Simple linear regression analysis showed that the child's screen time significantly predicts only internalizing behaviors ( $R^2 = 0.01$ ,  $p < 0.01$ ). From the

results, it can be interpreted that for every unit increase in screen time 3 units of internalizing behavioral problem may also increase. Hence, the null hypothesis was partially accepted.

Table 4. Association between child's socio-demographic factors and screen time

Age of child	Statistics	Child's screen time		t	df	p
		< 2 hours	>2 hours			
				34.12	3	0.000***
4 - 6 years	Count	105	91			
	Percent	53.5%	46.5%			
7 - 10 years	Count	58	162			
	Percent	26.4%	73.6%			
Gender				0.73	3	0.86
Female	Count	87	128			
	Percent	40.5%	59.5%			
Male	Count	76	125			
	Percent	37.8%	62.2%			

\*\*\* =  $p < .001$ .

There was a significant association between age and screen time ( $df = 3$ ,  $p < 0.001$ ) as 43% of older children had screen time above 2 hours per day, as compared to 26% of them who were reported to have screen time below 2 hours per day. Hence, the null hypothesis was partially accepted as gender was not significantly associated with screen time in the present sample.

### Discussion

The results showed that only 38% of the children had screen time within the recommendations provided by World Health Organization, in the sample studied. That is, below 2 hours per day. Previous studies reported that child's screen time significantly predicted internalizing and externalizing behaviors, both among school children (Zink et al., 2024) as well as preschool children (Liu et al., 2021). Neville, McArthur, Ririch, Lakes

and Madigan (2021) in their longitudinal study found that screen time was bidirectionally associated with externalizing and internalizing behaviors. However, in the present study, the child's screen time was found to have a significant impact only on internalizing behaviors. This can perhaps be explained, firstly, by discrete mechanisms underlie internalizing and externalizing problems in relation to their association with children's screen time. For instance, the content viewed by the child as such involving violence or aggression may result in externalizing behavior problems, whereas indirect effects of sleep disturbances and displacement of social activities by time spent in front of the screen device may contribute to internalizing problems (Eirich et al., 2022; Kraut et al., 1998). Secondly, Geng, Xu and Liu (2023) suggested that internalizing problems may have a strong negative association with age among preschool

children, however among older school children challenges such as greater academic demands, peer problems and competition may result in psychological and physiological changes, thereby demonstrated as internalizing problems. Therefore, more time spent in front of screen devices may reduce their opportunities to learn and develop adaptive life skills through real-life experiences. Lastly, since repeated exposure to aggressive or violent content may desensitize children (Eirich et al., 2022) they are less likely to be identified or reported by parents.

For the socio-demographic factors,  $H_02$  null hypothesis was accepted as gender was not significantly associated with child's screen time. However, the null hypothesis  $H_03$  was failed to be rejected as the present study revealed a significant association between age and child's screen time. The evidence for socio-demographic characteristics in relation to the child's screen time have been mixed. There is some evidence showing a significant association between the child's age and screen time (Goh et al., 2016; Sharma et al., 2022) while it has also been proven otherwise (Geng, Xu & Liu, 2023). It is perhaps possible to explain this due to various reasons. Firstly, parental control on the child's screen time appears to reduce with increase in child's age (Qi, Yan & Yin, 2023). Therefore, the extent to which they may succeed in setting limits may depend on their parental self-efficacy (Jago et al., 2015). Among younger children, environmental manipulation and behavioral strategies are likely to prove effective regulating their screen time. As younger children largely depend on adults for care and their daily life, mothers are likely to be in control of their screen exposure. Secondly, the reason for increase in screen time with age could also be related to the purpose of screen use. For instance, younger children may be limited to viewing content on screen devices, whereas

older children may have more uses such as social media, video gaming and time on other online activities. Lastly, methodological and cultural differences must also be considered to explain the findings related to socio-demographic factors and child's screen time.

### **Limitations**

The findings of the study limited to school children between 4-10 years of age and cannot be generalized to older children. The behavioral problems explored are reported by mothers, as the children did not undergo any screening for identifying clinical conditions. Lastly, the study only included mothers.

### **Implications**

The present study is important in estimating the extent of the problem of excessive screen time among children. Its impact on the child's behavioral problems calls professionals' attention to increase parental awareness and involvement in regulating and monitoring children's screen time. School authorities and policy makers may take into consideration the influence of screen time while assigning online academic tasks as it can add to the burden of the problem. Further, the study has significant implications for highlighting the role of parent support and co-regulation in reducing the child's emotional distress and internalizing behavioral problems.

### **Conclusion**

Majority of the children do not appear to follow the age-appropriate screen time recommendations. High screen time significantly predicts internalizing behaviors among children. Age of the child may be strongly associated with screen time. Children are likely to benefit from more parental involvement in regulating their screen time and help to develop healthy screen use habits.

## References

- Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA school-age forms & profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth, and Families.
- American Academy of Pediatrics. (2013). Children, Adolescents, and the Media. *PEDIATRICS*, *132*(5), 958–961. <https://doi.org/10.1542/peds.2013-2656>
- Bahadur, E., & Karaca, H. (2023). Growing concern; the relationship between screen time and behavior problems in digital era. *Medicine Science | International Medical Journal*, *12*(1), 204. <https://doi.org/10.5455/medscience.2022.12.269>
- Bele, S. D., Bodhare, T. N., Valsangkar, S., & Saraf, A. (2013). An epidemiological study of emotional and behavioral disorders among children in an urban slum. *Psychology, Health & Medicine*, *18*(2), 223–232. <https://doi.org/10.1080/13548506.2012.701751>
- Berry, J. O., & Jones, W. H. (1995). The Parental Stress Scale: Initial Psychometric Evidence. *Journal of Social and Personal Relationships*, *12*(3), 463–472. <https://doi.org/10.1177/0265407595123009>
- Dauw, J. (2016). Screen Time and the Effects on Development for Children Ages Birth to Five Years. *Culminating Projects in Child and Family Studies*, *7*. [https://repository.stcloudstate.edu/cfs\\_etds/7](https://repository.stcloudstate.edu/cfs_etds/7)
- Eirich, R., McArthur, B. A., Anhorn, C., McGuinness, C., Christakis, D. A., & Madigan, S. (2022). Association of Screen Time With Internalizing and Externalizing Behaviour Problems in Children 12 Years or Younger: A Systematic Review and Meta-analysis. *JAMA psychiatry*, *79*(5), 393–405. <https://doi.org/10.1001/jamapsychiatry.2022.0155>
- Geng, S., Xu, K., & Liu, X. (2023). Association between Electronic Media Use and Internalizing Problems: The Mediating Effect of Parent–Child Conflict and Moderating Effect of Children’s Age. *Behavioural Sciences*, *13*(8), 694. <https://doi.org/10.3390/bs13080694>
- Goh SN, Teh LH, Tay WR, et al. Socio demographic, home environment and parental influences on total and device-specific screen viewing in children aged 2 years and below: an observational study. *BMJ Open* 2016;6:e009113. doi:10.1136/bmjopen-2015-009113
- Goodman, R. (1997). *Strengths and Difficulties Questionnaire (SDQ)* [Database record]. APA PsycTests.
- Gupta, P., Shah, D., Bedi, N., Galagali, P., Dalwai, S., Agrawal, S., John, J. J., Mahajan, V., Meena, P., Mittal, H. G., Narmada, S., Smilie, C., Ramanan, P. V., Evans, Y. N., Goel, S., Mehta, R., Mishra, S., Pemde, H., Basavaraja, G. V., & Parekh, B. J. (2021). Indian Academy of Pediatrics Guidelines on Screen Time and Digital Wellness in Infants, Children and Adolescents. *Indian Pediatrics*, *59*(3), 235–244. <https://doi.org/10.1007/s13312-022-2477-6>
- Indian Psychiatry Society. (2020). *Recommendations for Screen Use: Indian Psychiatry Society*. <https://indianpsychiatricsociety.org/wpcontent/uploads/2020/06/E-Booklet-RECOMMENDATIONS-FOR-SCREEN-USE.pdf>.
- Jago, R., Wood, L., Zahra, J., Thompson, J. L., & Sebire, S. J. (2015). Parental control, nurturance, self-efficacy, and screen viewing among 5- to 6-year-old children: a cross-sectional mediation analysis to inform potential behavior change strategies. *Childhood obesity (Print)*, *11*(2), 139–147. <https://doi.org/10.1089/chi.2014.0110>
- Jeevannavar, J. S., Suryawanshi, S. S., & Patil, P. (2020). Reliability and Validity of the Kannada Version of the Parental Stress Scale. *Indian Journal of Physiotherapy and Occupational Therapy - an International Journal*. <https://doi.org/10.37506/ijpot.v14i4.11297>
- Karki, U., & Sravanti, L. (2021). Excess Screen Time - Impact on Childhood Development

- and Management: A Review. *Med Phoenix*, 6(1), 40–45. <https://doi.org/10.3126/medphoenix.v6i1.36908>
- Liu, W., Wu, X., Huang, K. *et al.* Early childhood screen time as a predictor of emotional and behavioural problems in children at 4 years: a birth cohort study in China. *Environ Health Prev Med* 26, 3 (2021). <https://doi.org/10.1186/s12199-020-00926-w>
- Mackay, L. J., Komanchuk, J., Hayden, K. A., & Letourneau, N. (2022). Impacts of parental technoferece on parent-child relationships and child health and developmental outcomes: a scoping review protocol. *Systematic Reviews*, 11(1). <https://doi.org/10.1186/s13643-022-01918-3>
- Malakar, P. (2021). A Study on the Impact of Parent-child Relationship and Socioeconomic Status on Problem Behaviour among Children. *Journal of Pharmaceutical Research International*, 541–549. <https://doi.org/10.9734/jpri/2021/v33i58b34235>
- Marchand-Reilly, J. F., & Yaure, R. G. (2019). The Role of Parents' Relationship Quality in Children's Behaviour Problems. *Journal of Child and Family Studies*, 28(8), 2199–2208. <https://doi.org/10.1007/s10826-019-01436-2>
- McDaniel, B. T., & Radesky, J. S. (2018). Technoferece: longitudinal associations between parent technology use, parenting stress, and child behaviour problems. *Pediatric Research*, 84(2), 210–218. <https://doi.org/10.1038/s41390-018-0052-6>
- Neville, R. D., McArthur, B. A., Eirich, R., Lakes, K. D., & Madigan, S. (2021). Bidirectional associations between screen time and children's externalizing and internalizing behaviours. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 62(12), 1475–1484. <https://doi.org/10.1111/jcpp.13425>
- Nezhad, M. a. S., Khodapanahi, M. K., Yekta, M., Mahmoodikahriz, B., & Ostadghafour, S. (2011). Defense styles in internalizing and externalizing disorders. *Procedia - Social and Behavioral Sciences*, 30, 236–241. <https://doi.org/10.1016/j.sbspro.2011.10.047>
- Paquette, D., & Ryan, J. (2001). *Bronfenbrenner's Ecological Systems Theory*. Undefined. <https://www.semantic scholar.org/paper/Bronfenbrenner%27s-Ecological-Systems-Theory-Paquette-Ryan/b23a4e916f3d815a2624f2289575cdf5c493a0c6>
- Patel, M. J., Patel, P. B., & Bansal, R. K. (2016). Parental Stress Scale: Translation and Preliminary Testing for A Gujarati Sample. *National Journal of Community Medicine*, 7(07), 551–554. <https://njamindia.com/index.php/file/article/view/1000>
- Qi, J., Yan, Y. & Yin, H. Screen time among school-aged children of aged 6–14: a systematic review. *glob health res policy* 8, 12 (2023). <https://doi.org/10.1186/s41256-023-00297-z>
- Sharma, B., Shrestha, N., Gurung, N., Tiwari, B. R., Koirala, S., & Wagle, S. (2022). Prevalence and factors associated with excessive screen time among young children of 5 to 9 years in Pokhara Metropolitan of Kaski District. *Journal of Chitwan Medical College*, 12(2), 40–46. <https://doi.org/10.54530/jcmc.709>
- Srikala, B., & Kumar, KishoreK. V. (2010). Empowering adolescents with life skills education in schools - School mental health program: Does it work? *Indian Journal of Psychiatry*, 52(4), 344. <https://doi.org/10.4103/0019-5545.74310>
- Taghizade, S., Mahmoodi, Z., Zandifar, A., Qorbani, M., Mohamadi, F., & Mehrafzoun, N. (2022). The relationship model among parent-child relationship, coping responses and behavioral problems in children with attention deficit hyperactivity disorder. *BMC Psychiatry*, 22. <https://doi.org/10.1186/s12888-022-04224-3>
- Tang, L., Hruska, V., Ma, D. W. L., & Haines, J. (2020). Parenting under pressure: stress is associated with mothers' and fathers' media parenting practices in Canada.

- Journal of Children and Media*, 1–16. <https://doi.org/10.1080/17482798.2020.1765821>
- Thackery, E. & Harris, M. (2003). *The gale encyclopedia of mental disorders*. New York: Thomson Gale.
- Uzundağ, B. A., Oranç, C., Keppafođlu, D., & Altundal, M. N. (2022). Relations among self-reported maternal stress, smartphone use, and mother–child interactions. *Journal of Child and Family Studies*. Advance online publication. <https://doi.org/10.1007/s10826-022-02371-5>
- Wilkinson, C., Low, D. F., & Gluckman, S. P. (2021, September 3). *Screen time: The effects on children’s emotional, social, and cognitive development*. Koi Tû: The Centre for Informed Futures. <https://informedfutures.org/screen-time/>
- Zink, J., O’Connor, S. G., Blachman-Demner, D. R., Wolff-Hughes, D. L., & Berrigan, D. (2024). Examining the bidirectional associations between sleep duration, screen time, and internalizing symptoms in the ABCD study. *Journal of Adolescent Health*, 74(3), 496–503. <https://doi.org/10.1016/j.jadohealth.2023.09.001>

**Sandhya Shivakumar**, Department of Psychology, Women’s Christian College, Chennai

**Kanchana Mohannathan**, Head (Retired), Department of Psychology, Women’s Christian College, Chennai. Email [kanchgraj@yahoo.in](mailto:kanchgraj@yahoo.in)