

## Study of Problematic Internet Use in School Children during Covid-19 Pandemic

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**Abstract: Background:** After the Covid – 19 outbreak, school going children have been advised to stay at home due to which children and their parents have had to greatly rely on internet for learning. Due to increased stay indoors, children are being more drawn towards screens to keep themselves occupied. Increased screen- time in children is leading to more problematic internet use. There is little research regarding the study of problematic internet use during COVID -19 in India. Therefore, this study was conducted. **Primary objective:** To study the problematic internet use among children of age group 6 – 16 years during covid-19 pandemic. **Materials and Methods:** After the permission from the Institutional Ethics Committee, 53 parents of school going children of age group 6 - 16 years in urban population, satisfying the inclusion and exclusion criteria participated in the study. Informed consents were obtained. Each individual was interviewed along with the semi-structured proforma and then administered scale for internet use. (Young's Internet Addiction test). **Results:** Information about 53 children was obtained through parents' interview. Out of 53 children 15 (28.3%) were in age group of 6-10 years, 34 (64.2%) were in age group of 11-15 years, 4 (7.5 %) were above the age of 15 years. The mean age in children was  $11.57 \pm 2.65$  years. In this study, 17 (32%) children showed problematic internet use according to Young's Internet addiction scale. **Conclusions:** A significant number of children showed problematic internet use during covid – 19 pandemic.

**Keywords:** Covid-19, Pandemic, Internet addiction, School children, Psychiatry, Problematic internet use.

### INTRODUCTION

COVID-19 is an infectious disease caused by SARSCoV2 virus. In December 2019, the first known case was detected in Wuhan, China. [Page, J. *et al.*, 2021] The disease has since spread over the world, resulting in an ongoing pandemic.[Zimmer, C, 2021]

After the Covid – 19 outbreak of 2020, various domains of society have been affected like day-to-day functioning, leisure activities and education.[Park, K.H. *et al.*, 2021] To stop the spread of the disease, the Indian government implemented a nationwide lockdown.[Rai, B. *et al.*, 2020]

In the face of ongoing school closures and a desire to adapt to this new way of life, educational institutions have turned to Internet-based technologies to reach out and engage with students. [India Today Web Desk, 2020]

Most of their classroom learning has been replaced a combined strategy of technologies consisting of Google Classroom as a distance learning application, WhatsApp group as broadcast messaging, and Zoom as a video conferencing tool. [Utomo, M. *et al.*, 2020]

Due to increased stay indoors, children are being more drawn towards screens, to keep themselves occupied. Increased screen time has resulted in potentially harmful effects such as reduced sleep

or day-night reversal, headaches, neck pain, myopia, digital eye syndrome, and cardiovascular risk factors such as obesity.[World Health Organization, 2020]

There is little research regarding the study of problematic internet use in India. Therefore, this study was conducted to study problematic internet use amongst school children during covid-19 pandemic as it would have lasting repercussions on the internet use and day to day lifestyle of future generation.

### MATERIALS AND METHODS

The study design was observational cross-sectional study with study duration of 3 months. This study was conducted with total 53 parents of school going children of age 6 – 16 years in urban population who were willing to participate.

In this study parents of children studying in special school, parents who were not willing to participate, parents whose children were attending school sporadically and parents with children less than 6 years of age and more than 16 years of age were excluded. Semi structured proforma was used to collect socio-demographic data and pattern of internet use amongst children. After the permission from Institutional Ethics Committee, Informed consent was taken from all the participants before they answered the questions. Parents of the children were telephonically interviewed along the

semi-structured proforma prepared for the study. Each interview approximately required 20 minutes to complete, and included questions relating to socio-demographic data, school timings, other recreational activities (online or offline if any), any irritability, tantrums or sleep disturbances related to internet use noticed by parents were noted. Permission taken by child before using internet was enquired about. Physiological changes like change in appetite, any episode of nocturnal enuresis, eye strain, backache was enquired about. The pattern of internet use, whether it was on a cell phone, tablet, laptop or desktop and whether the usage was in common area or private room had also been noted. Whether the child was found deleting browser history or was found visiting objectionable sites, was also noted. If the child had used internet banking for accessing internet games was also enquired about.

The nature of internet use was assessed using: Young's internet addiction scale. [Young, K.S, 1998] The IAT is a self - rated questionnaire, the score is the sum of ratings given by the examinee for the 20 item responses. Each item is rated on a five point scale ranging from 0 to 5 the maximum score is 100 points. The higher the score is the higher the severity of problem. Total scores that range from 0 to 30 points are considered to reflect a normal level of internet usage scores, 31 to 49 indicate the presence of a mild level of internet addiction, 50 to 79 reflect the presence of moderate level and the scores of 80 to 100 indicate a severe dependence upon the internet. Cronbach's alpha coefficient for the internal reliability of the scale was found to be 0.91.[Samaha, A.A. *et al.*, 2018]After the interview, Clinical data had been collected, tabulated and analysed using chi square test and ANOVA.

## RESULT

The survey was completed with total 53 parents of school going children students, belonging to urban population.

Out of the total n=53 subjects, 31 (58.5%) had a male child and 22 (41.5%) subjects had a female child. 15 children (28.3%) were in the age group of 6-10 years, 34 children (64.2%) were in the age group of 11-15 years and 4 children (7.5%) were in the age group of 15-16 years, with the mean age being  $11.57 \pm 2.65$  years.

In the parents of school going children, all of the participants had an educational acumen of graduation or post-graduation level. 18 parents

(34%) were graduates whereas 35 parents (66%) had completed their post-graduation. All of the parents were residents of urban area (100%).

The duration of internet use was 0-4 hrs. in 17 children (32.07%), 5-8 hrs. in 30 children (56.60%) and 9-12 hrs. in 5 children (9.4%) respectively. One child had internet use exceeding 12 hours (1.8%). As the schooling was being conducted online during this period, the duration of school hours was also included in internet use. Total duration of school was 0-4 hrs. in maximum children i.e. 35 children (66.03%), and 5-8 hours in 18 children (33.96%). The duration of time spent on extra-curricular activities was 0-2 hours in 35 children (64.81%), 3-5 hours in 8 (14.81%) children. The amount of time spent on recreational activities online was 0-2 hours in 50 children (92.59%) and 3-5 hours in 2 (3.70%) children and more than 5 hours in one child (1.8%).

Findings derived from the semi-structured proforma suggest, majority of children, 37 (69.8%) were pre-occupied with online games. A large number of parents also reported that irritability and tantrums on taking away the cellphone was seen in 30 (56.6%) children.

The study also discerned that the time spent online was showing an increasing trend in a relatively large sum of 33 children (62.3%). Despite this majority of children, 34 (64.2%) and 30 children (56.6%) did not show noticeable lack of interest in interacting with peers or academic activities respectively.

Around 47.2% children (n=25) also had complaints like backache, eye strain and headache due to increased screen – time.

Changes in dietary patterns was also observed in a small number of children, 13 children (24.5%) had decreased appetite, 5 children (9.4%) had increase in appetite. Changes in sleep patterns were also reported by parents. Around 15 children (28.3%) had late onset sleep, 3 children (5.7%) had multiple midnight awakenings and 1 child (1.9%) had other sleep disturbances.

Children had different patterns of internet usage. 49.1% children (n=26) were accessing the internet on cellphone, 32.08% (n=17) on laptop, 17% (n=9) on tablet and 1.89% (n=1) on desktop. 77.35 % children (n=41) were accessing internet in a common room whereas 22.6% children (n=12) were accessing internet in a private area.

Majority of children, 38 (71.7%) participated in some physical activity or exercise. Majority of children, 46 (86.89%) also communicated well with parents. Majority of children 37 (69.8%) and 38 (71.7%) respectively did not access cellphone of parents or other family members, without permission.

A large number of children, 37 (69.8%) were routinely using internet for messaging and video calls with their friends. 40 Children (75.5%) had also stopped watching routine T.V. programs.

Majority of children 48 (90.6%) and 47 (88.7%) were not seen visiting objectionable sites or deleting browser history respectively. A large number of children 51 (96.2%) also did not use internet banking without permission of parents.

According to Young's internet addiction test, 67.9% children (n=36) had normal internet usage, 22.6% children (n=12) had mild level of internet addiction and 9.4% children (n=5) had moderate level of internet addiction.

### 1 Association of severity of internet use with gender

When it comes to gender, 11 male children (35.5%) had mild severity of internet addiction and 3 males (9.7%) had moderate internet addiction. In females, only 1 child (4.5%) had mild level of internet use and 2 (9.1%) had a moderate internet

addiction. In this study, statistically significant association was found between gender and severity of internet use.  $P=0.026$ .

### 2. Association of problematic internet use with Education of parents

In children of graduate degree holders, 5 (27.8%) showed mild internet addiction and 3 (16.7%) had moderate internet addiction. Amongst children of post graduate degree holders, 7 (20%) showed mild internet addiction and 2 (5.7%) had moderate internet addiction. However, in this study, no statistically significant association was seen between severity of internet use and educational background of parents.  $P=0.295$

### 3. Association of severity of internet addiction with age of child

Only 1 child (6.7%) in the age group of 6-10 years had mild level of internet addiction and 1 (6.7%) child had moderate level. Whereas in the age group of 11-15 years, 11 children (32.4%) had mild internet addiction and 3 (8.8%) had moderate internet addiction.

In children above the age of 15, only 1 (25%) child had moderate internet use. However there was no statistically significant association between severity of internet addiction and age of child.  $P=0.172$ .

**Table 1:** Age distribution of children

		Count	%
Age	6 to 10 years	15	28.3%
	11 to 15 years	34	64.2%
	>15 years	4	7.5%
	Total	53	100.0%

Mean age of subjects was  $11.57 \pm 2.65$  years.

**Table 2:** Gender of child

		Count	%
Gender of child	Female	22	41.5%
	Male	31	58.5%
	Total	53	100.0%

**Table 3:** Educational status of parents

		Count	%
Educational background of parent	Nil	0	0.0%
	Up to Higher Secondary	0	0.0%
	Graduation	18	34.0%
	Post graduation	35	66.0%
	Total	53	100.0%

**Table No: 4** Total duration of time spent on internet

Duration	No. of children	Percentage
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0- 4	17	32.07%
5-8	30	56.60%
9-12	5	9.4%
12	1	1.8%
Total	53	100%

**Table 5:** Total duration of school

Duration	No. of children	Percentage
0- 4 hrs	35	66.03 %
5-8 hrs	18	33.96%
Total	53	100%

**Table 6:** Amount of time spent on extra-curricular activities

Duration	No. of children	Percentage
0- 2 hrs	35	64.81%
3-5 hrs	18	14.81%
5 hrs	0	0
Total	53	100%

**Table 7:** Amount of time spent on recreational activities

Duration	No. of children	Percentage
0- 2 hrs	50	92.59%
2-5 hrs	2	3.70%
5 hrs	1	1.8%
Total	53	100%

**Table 8:** Mode of schooling

		Count	%
Mode of schooling currently	online	53	100.0%

**Table 9:** Severity of internet addiction

		Count	%
Severity of internet addiction	Normal (<30)	36	67.9%
	Mild (31-49)	12	22.6%
	Moderate (50 to 79)	5	9.4%
	Severe (80-100)	0	0.0%
	Total	53	100.0%

**Table 10:** Semi-structured proforma

	No		Yes	
	Count	%	Count	Percentage
Is the child preoccupied with online videos/games	16	30.2%	37	69.8%
Is there irritability/ tantrums seen in child if cell phone / tablet is taken away?	23	43.4%	30	56.6%
Is the amount of time spent online showing an increasing trend?	20	37.7%	33	62.3%
Is there noticeable loss of interest in interacting with peers?	34	64.2%	19	35.8%
Is there noticeable lack of interest in academic activities?	30	56.6%	23	43.4%
Is the child complaining of headache, eye strain, neck pain or backache?	28	52.8%	25	47.2%
Does the child participate in any physical activities or exercise?	15	28.3%	38	71.7%
Is the child able to communicate well with the parents?	7	13.2%	46	86.8%
Is the child accessing internet without the permission of parents?	37	69.8%	16	30.2%

Is the child accessing cell phone of parents without permission?	38	71.7%	15	28.3%
Is the child accessing cell phone of other family members without permission?	44	83.0%	9	17.0%
Is the child engaging in messaging or video calls with friends?	37	69.8%	16	30.2%
Has the child stopped watching routine TV programs?	40	75.5%	13	24.5%
Is the child found visiting objectionable sites?	48	90.6%	5	9.4%
Is the child found deleting browser history?	47	88.7%	6	11.3%
Has the child ever used internet banking to without the permission of parents to access online video games or recharge to access internet?	51	96.2%	2	3.8%
Is there a disturbance in sleep pattern? Midnight awakenings	Late onset		15	28.3%
	Midnight awakenings		3	5.7%
	None		34	64.2%
	Others		1	1.9%
Is there an increase or decrease in appetite?	Increase		5	9.4%
	Decrease		13	24.5%
	No Change		35	66.0%
The child is accessing internet on	Laptop		17	32.1%
	Cell phone		26	49.1%
	Tablet		9	17.0%
	Others		1	1.9%
Area of house where internet use is being done Private area	Common area		41	77.35%
	Private area		12	22.6%

**Table 11:** Association between Sociodemographic factors and Severity of Internet addiction

		Severity of internet addiction								P value
		Normal (<30)		Mild (31-49)		Moderate (50 to 79)		Severe (80-100)		
		Count	%	Count	%	Count	%	Count	%	
Educational background of parent	Nil	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.295
	Up to Higher Secondary	0	0.0%	0	0.0%	0	0.0%	0	0.0%	
	Graduation	10	55.6%	5	27.8%	3	16.7%	0	0.0%	
	Postgraduation	26	74.3%	7	20.0%	2	5.7%	0	0.0%	
Age	6 to 10 years	13	86.7%	1	6.7%	1	6.7%	0	0.0%	0.172
	11 to 15 years	20	58.8%	11	32.4%	3	8.8%	0	0.0%	
	>15 years	3	75.0%	0	0.0%	1	25.0%	0	0.0%	
Gender of child	Female	19	86.4%	1	4.5%	2	9.1%	0	0.0%	0.026*
	Male	17	54.8%	11	35.5%	3	9.7%	0	0.0%	

## DISCUSSION

In this study, the prevalence of internet addiction was 32.%. This high prevalence could be attributed to various causes like mandatory lockdown, due to which social media and internet was used by a number of individuals to occupy themselves [Olawade, B. *et al.*, 2020], during this time period internet also replaced normal physical activities pursued by individuals. Since children could not step out of their homes, internet was being

increasingly used as a way of communicating with their friends and classmates.

A number of studies suggested relatively higher prevalence of internet use during covid-19 pandemic. A Study conducted by Ahmadian, *et al.*, 2022, showed that 37.5% children had internet addiction. The findings of Dong, *et al.*, 2020, also corroborate with findings of our study, this large scale study also showed that 33.37% participants had problematic internet use.



Number of studies show prevalence rates higher than our study ranging from 50-88%. [Afolabi, A.A. *et al.*, 2022; Onukwuli, V.O. *et al.*, 2023; Islam, M.R. *et al.*, 2023] This could be attributed to the fact that all the studies were conducted in different regions, with different socio-cultural background, at different time periods.

This study noted that gender has significant association with internet addiction, males showing increasingly problematic internet use. and this is in corroborates with findings of studies conducted by Dong, *et al.*, 2020, Kumari, *et al.*, 2022.

This study has shown that children had difficulties in various domains of day to day functioning like irritability, problems with communication, sleep disturbances. This could lead to future psychological manifestations as various studies have shown relationship between internet use and psychopathology [Mustafa, K.O.Ç].

## CONCLUSIONS

This study showed increased Internet use in school-going children during Covid-19 pandemic. Schools being conducted online as well as lockdown, increased screen-time of children. This increase in screen-time has affected number of domains in day-to-day functioning in children. Thus, parental supervision and relaxation in lockdown would further reduce this susceptibility of children towards increased internet use.

## LIMITATIONS

Data collection was done on telephonic conversation, therefore because of the time constraints small number of people could

participate in the study. The study was conducted in urban population where electronic devices were more prevalently used as compared to rural area.

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