



## INTERNATIONAL JOURNAL OF PAEDIATRICS AND GERIATRICS

P-ISSN: 2664-3685  
E-ISSN: 2664-3693  
[www.paediatricjournal.com](http://www.paediatricjournal.com)  
IJPG 2025; 8(2): 01-08  
Received: 05-06-2025  
Accepted: 07-07-2025

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## Impact of screen time on behavioural and psychosocial factors among rural and urban students of mid-adolescent age group

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**DOI:** <https://doi.org/10.33545/26643685.2025.v8.i2a.262>

### Abstract

**Background:** The World Health Organization, paediatric societies, and other international organizations advise teenagers to restrict their screen use to two hours per day in light of the negative impacts. The average amount of time spent in front of a screen worldwide in 2024 was six hours and forty minutes.

**Methodology:** This analytical cross-sectional survey was conducted in rural and urban schools. 500 samples were gathered from both class 9 and class 10, 250 samples were from rural, and 250 from urban. Teachers and students were briefed on the study objectives and the content of the questionnaires. Data was collected through demographic form, screen time, and strength and difficulties questionnaires.

**Results:** The study included 500 participants, 250 from urban schools and 250 from rural classes of 9-10. The majority had underweighted BMI. Most students reported an effect on their studies due to extreme device usage. Higher scores in emotional problems were seen while evaluating the strength and difficulty questionnaire.

**Conclusion:** Our study clearly shows that among urban and rural students, the urban population was found to be more addicted to screens compared to the rural. Even though electronics have become increasingly ingrained in our daily lives, either parents or other caregivers should be aware of the advantages and disadvantages thereby establishing rules that encourage responsible multimedia consumption.

**Keywords:** Screen, paediatric, emotional, exposure, conduct, hyperactivity, peer problems, prosocial

### Introduction

The omnipresence of screen in various forms, including smartphones, tablets, computer, and television has refined how we communicate, access information, and engage with the world around us <sup>[1]</sup>. New technologies, such as mobile and interactive screen media, are now ingrained in a young child's daily life. Children today are digital natives," having been born into an ever-changing digital ecosystem augmented by mobile media <sup>[2]</sup>. The global rise in screen time and social media consumption among adolescents and young adults has been well-documented. According to a report by the Pew Research Center, 95% of teens aged 13-17 years in the United States have access to a smartphone, and nearly half report being online "almost constantly." <sup>[1]</sup> Many adolescents today tend to prefer social networking and games available on the Internet over direct interaction with others and activities that require physical activity <sup>[3]</sup>. Early childhood is the critical phase in development when the brain is more sensitive to the environment around them <sup>[7]</sup>. India with its vast and rapidly growing youth population, has not been immune to the impact of excessive screen time and social media <sup>[1]</sup>. Excessive exposure to screens especially at adolescence has been associated with lower academic performance, increased sleep problems, obesity, behavioural problems, increased aggression, lower self-esteem and depression <sup>[4]</sup>. A study by the Gurugram based Fortis healthcare revealed that 60% of Indian teenagers spend more than 5 hours per day on their smartphones, primarily for social media and entertainment purpose <sup>[1]</sup>. A common health concern is adoption of a sedentary lifestyle, which in turn, increases the risk of obesity <sup>[3]</sup>. Food advertisement is an important link connecting media time with unhealthy food consumption and subsequent obesity.

Sleep deprivation leads to changes in ghrelin and leptin, causing increased hunger and decreased satiety <sup>[5]</sup>. Concerning physical health, there has been an association with sedentary habits, an increase in eating junk foods, more prevalence of obesity/malnutrition, delay in developmental milestones, reduction in physical play activity, poor sleep quality, etc. <sup>[6]</sup> Use of media as sleeping aids was found to be associated with higher fatigue, later time to bed, lesser hours of sleep per week and poorer sleep quality <sup>[5]</sup>. Screens curtail the ability to control impulses and reduce empathy and the ability to read human emotion <sup>[7]</sup>. About mental health, there has been association with decreased interaction with other children, and deficits in attention, intelligence, and social skills which are normally attained at a particular age. There has also been an increase in incidences of psychiatric illnesses like depression, anxiety, and psychopathological symptoms <sup>[6]</sup>. Early exposure to television at age and 3 years has been associated with attention problems at age of 7 years <sup>[5]</sup>.

## Methods

This analytical cross-sectional survey was conducted in August and October of 2024 in Telangana state. Two schools, one in the urban and one in the rural were chosen at random. With equal distribution, 500 samples were gathered from both class 9 and class 10, 250 samples were from rural, and 250 from urban. All the pupils who were in the school on that specific study date were included. Teachers and students were briefed on the study objectives and the content of the

questionnaires. The demographic form, screen time, and strength and difficulties questionnaires were filled out by the pupils on their own. A prominent survey tool with better validity and reliability is the SDQ. Five measures of conduct issues, hyperactivity, peer cooperation issues, emotional symptoms, and Prosocial behavior were included. Every participant's data sheet was filled out with no information missing in the excel sheets to generate graphs. The data was then entered in SPSS for statistical analysis

## Survey site

Rural and urban schools of Telangana state

## Study design

Cross-sectional analysis

## Sampling time

2 months

## Inclusion criteria

- 13-17 age group
- Students who were willing to participate
- Students who were present at school

## Exclusion criteria

- Didn't fill out at least 50% of the form
- Group greater than 17 years
- Students suffering from chronic illness

## Results

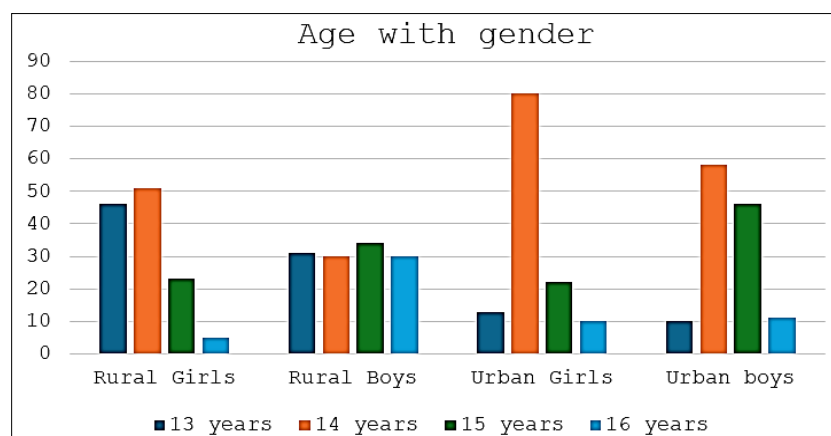


Fig 1: Age distribution of pupils with area

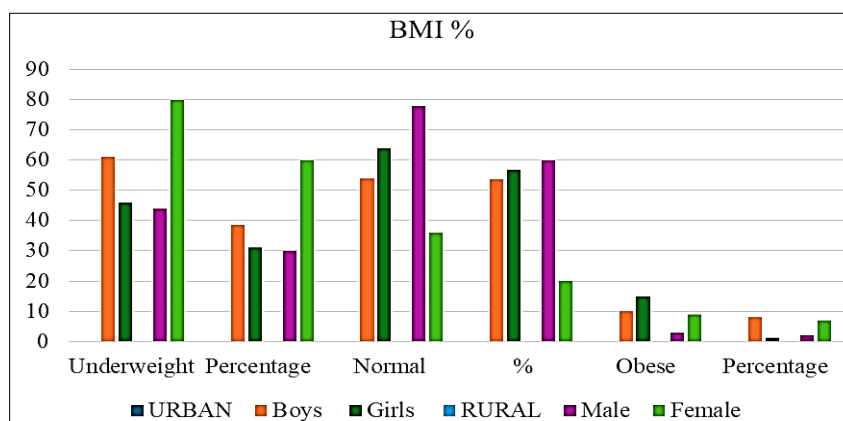
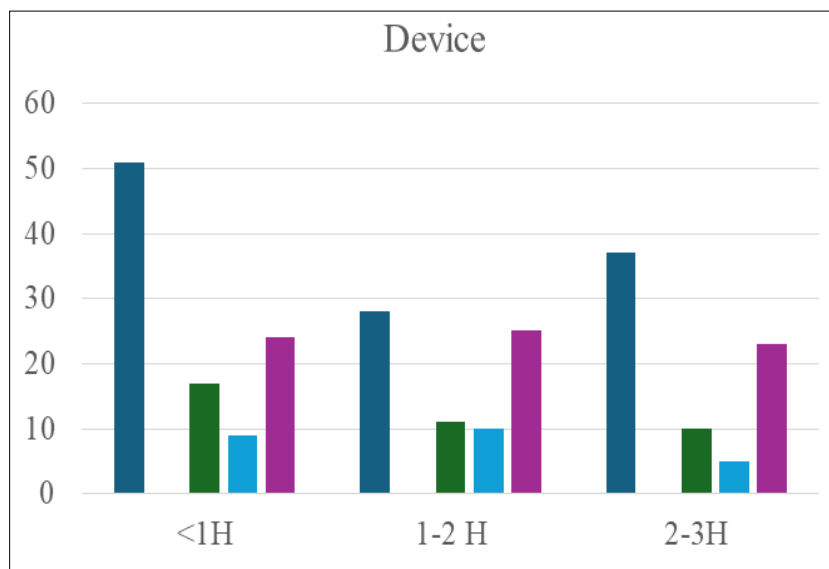
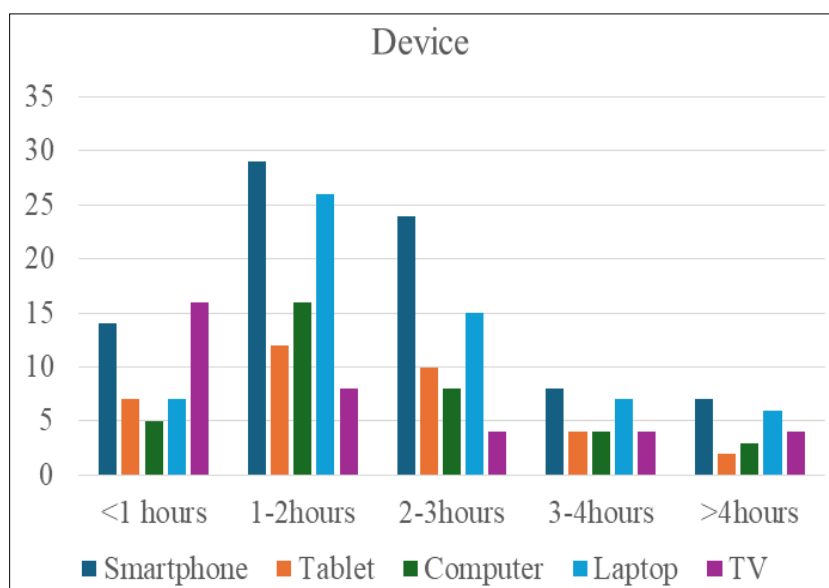


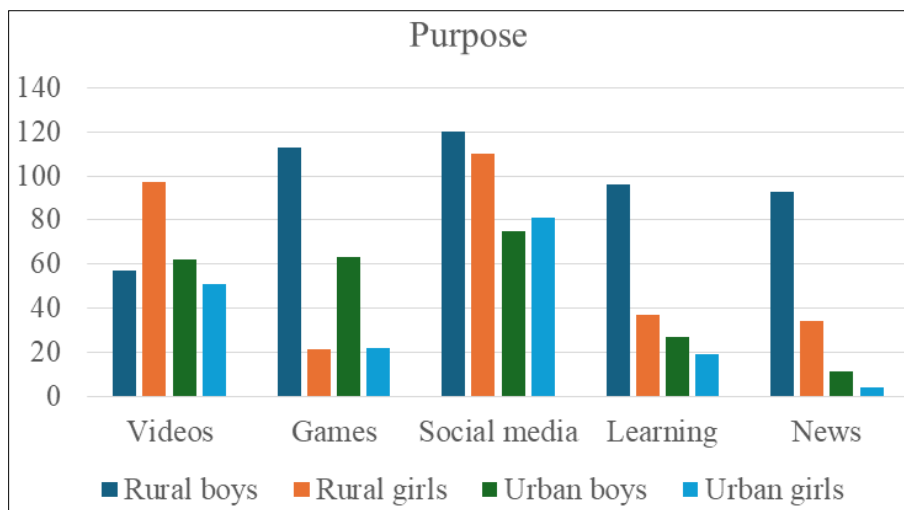
Fig 2: BMI distribution with respect to areas



**Fig 3:** Device usage by hours with area distribution in rural students



**Fig 4:** Device usage by hours with area distribution in urban students



**Fig 4:** Total number of students using media for various purpose.

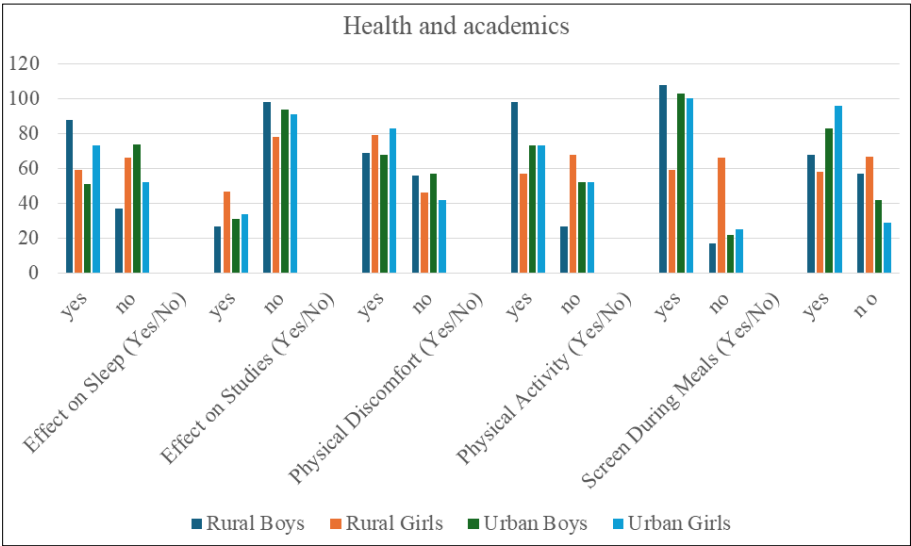


Fig 6: Impact on Health and Academics

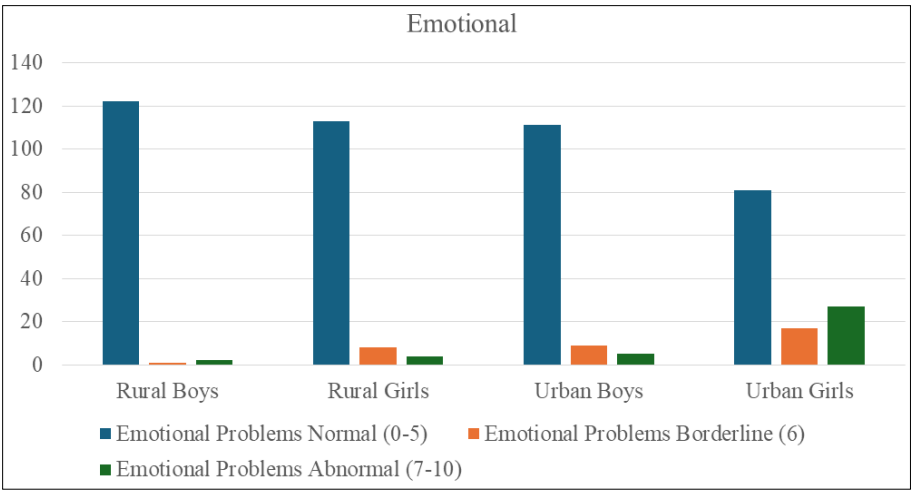


Fig 7: Emotional difficulty score

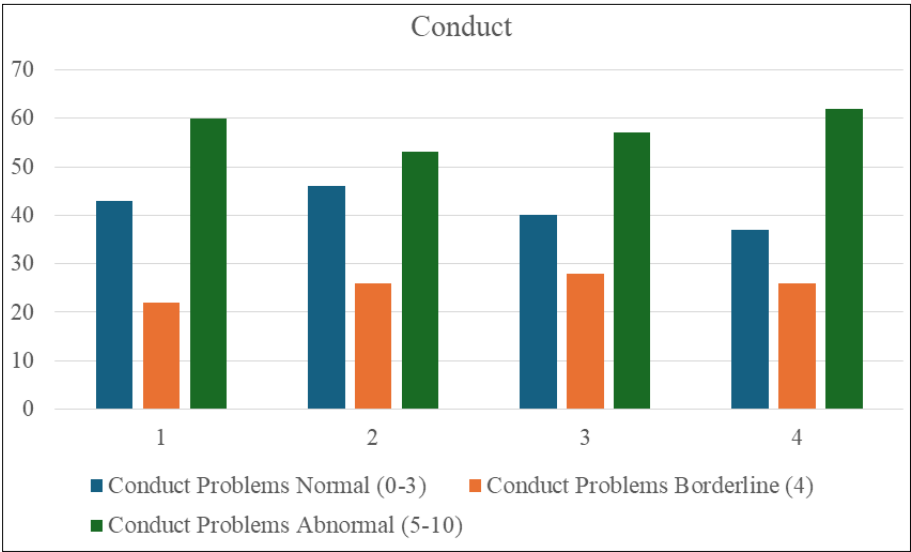
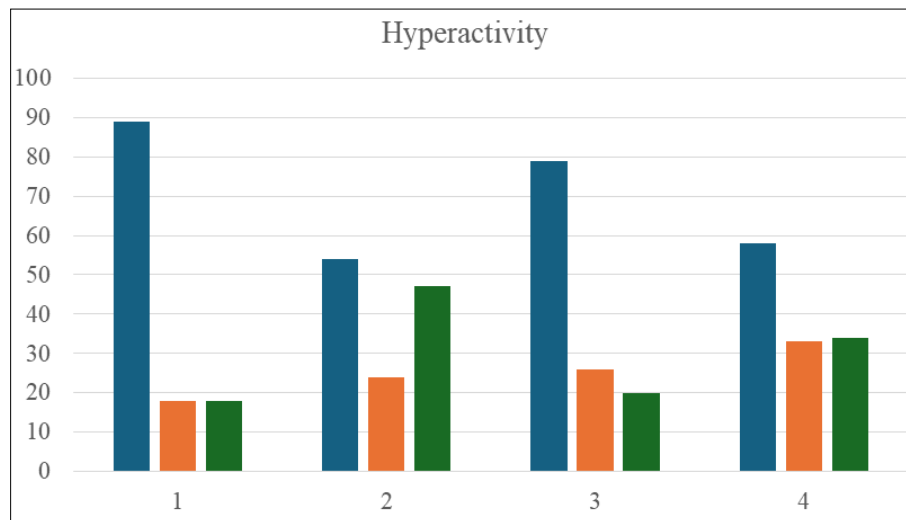
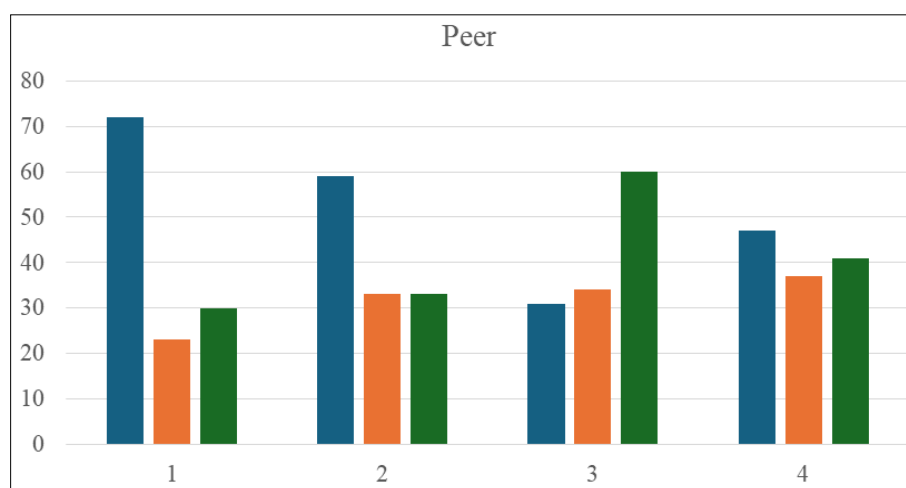
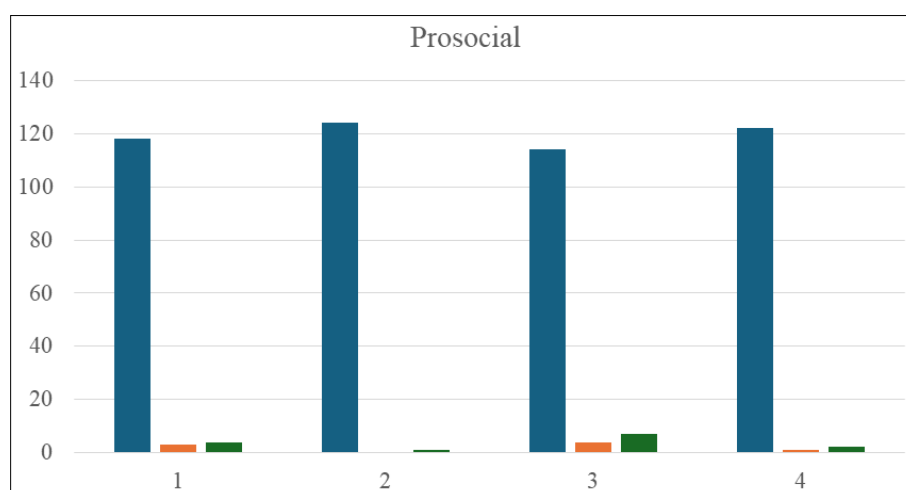


Fig 8: Conduct problem scores

**Fig 9:** Hyperactivity score.**Fig 10:** Peer scores**Fig 11:** Prosocial scores

### Discussion

A study done by Kayi Eliacik in 2016 tells us that in comparison to non-obese teenagers, they discovered that obese underage tended to use the grid for more than five hours a day, had a greater propensity to stay up late, and were sleepy during the day, these findings could be attributed to intemperate interweb usage and video gaming.

An observational study by Jean L. *et al.* Tests whether tele

viewing is linked to eating habits, and the study shows media consumption is related to young people consuming more calories. Accreted intake of calorie-dense, low-nutrient items that are regularly promoted on TV acts as a mediator in this association

The present study shows urban students were more obese compared to rural whereas country students were more underweight compared to city students. From both, urban

students were found to be using more content consumption than recommended by the Indian Academics of Pediatric. For various purposes of use, social media was found to be highly used by rural boys. Physical discomfort and its effect on lull both were found to be higher in rural students. The rural population was found to have greater conduct quandary and hyperkinetic compared to the urban. Studies can state that the socio-demographics of a person cannot explain the mode of lifestyle they live and also the mental and physical well-being of the person.

The findings from this study offer a detailed examination of the impact of tech needs on the well-being of rural and urban students in Telangana. The high prevalence of a normal BMI of 47% alongside a considerable proportion of underweight 46%, raises concerns about nutritional and health challenges. Media absorption among the participants ranged between 1-2 hours per day. Smartphone usage among the participants averaged hours per day, with the majority reporting 1-2 hours of touchscreens daily. A significant association between screen involvement and its effect on studies ( $p < 0.001$ ) was observed in the study where the greatest effect on the study corresponded with the highest mean tablet engagement of hours per day. In our study, the screen time of rural students using devices exceeds the currently recommended duration and is associated with an effect on their studies

### Conclusion

Our study clearly shows that among urban and rural students, the urban population was found to be more addicted to screens compared to the rural. Urban students were found to have more terms for mobile access. 46.4% of rural students use smartphones the most with 28.8% of television use is second highest. 32.8% of smartphone use is seen urban students followed with Laptops 24.4%. According to screen time guidelines 58.4% of urban students were found to have screentime more than recommended, whereas 30% in rural students. Even though electronics have become increasingly ingrained in our daily lives, either parents or other caregivers should be aware of the advantages and disadvantages thereby establishing rules that encourage responsible multimedia consumption.

### Annexures



## VAAGESWARI COLLEGE OF PHARMACY

(Affiliated to JNTUH - Hyderabad, Approved by PCI - New Delhi.)



### DATA COLLECTION DEMOGRAPHIC FORM

STUDENT NAME:  
AGE:  
GENDER:  
WEIGHT:  
HEIGHT:

### Acknowledgement

We are very thankful to the urban and rural schools for granting us permission to conduct the survey in their school's premises. A special thanks to the students who were cooperative the entire survey.

### No Funding statement

This study was done without any funding

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**Strength and difficulty questionnaire**

		Not true	Somewhat true	Certainly true
1.	I get a lot of headaches, stomach aches, or sickness			
2.	I worry a lot			
3.	I am often unhappy downhearted or tearful			
4.	I am nervous in new situations and often lose confidence			
5.	I have many fears, I am easily scared			
6.	I get very angry and often lose my temper			
7.	I usually do as I am told			
8.	I fight a lot I can make other people do what I want			
9.	I am often accused of cheating or lying			
10.	I steal from home, school or elsewhere			
11.	I get restless, I cannot sit still for longer			
12.	I am constantly fidgeting or squirming			
13.	I am easily distracted I find difficulty in concentrating			
14.	I think before I do things			
15.	I finish the things I am doing, my attention is good			
16.	I am usually on my own, prefer to play alone or keep it to myself			
17.	I have one good friend or more			
18.	Other people of my age generally like me			
19.	Pick on or bullied by other children			
20.	I get on better with adults than people of my age			
21.	I try to be nice to people, I care about their feelings			
22.	I usually share with others (food, games, books)			
23.	I am helpful if someone is hurt, upset or feeling ill			
24.	I am kind to younger children			
25.	I often volunteer to help others (parents, teachers, children)			

**Screen Time Questionnaire**

<b>1.</b>	<b>How many hours of screen time do you typically have in a day?</b>
A	Less than an hour
B	1-2 hours
C	2-3 hours
D	3-4 hours
E	More than 4 hours
<b>2.</b>	<b>Which device do you use for screen time? (select all that apply)</b>
A	Smartphone
B	Tablet
C	Computer
D	Laptop
E	TV
F	Gaming console
<b>3.</b>	<b>What activities do you use screens for? (select all that apply)</b>
A	Watching videos
B	Playing games
C	Social media (Instagram/WhatsApp/snapchat/Facebook)
D	Online learning
E	Reading news
F	Others
<b>4.</b>	<b>Do you have any personal screen device? (smartphone/laptop/computer/other)</b>
A	Yes
B	No
<b>5.</b>	<b>When do you usually have the most screen time? (Choose any one)</b>
A	Morning
B	Afternoon
C	Evening
D	Night
<b>6.</b>	<b>Do you have any screen time limit set by you parents?</b>
A	Yes
B	No
<b>7.</b>	<b>What factors contribute to your screen time habits?</b>
A	Boredom
B	Peer pressure
C	Personal interest
D	Parental restriction

E	Academic/work requirements
<b>8.</b>	<b>Do you think screen time affects your sleep patterns?</b>
A	Yes, I have trouble falling asleep
B	Yes, I wake up frequently during night
C	No, I sleep fine
<b>9.</b>	<b>Do you think screen time affects your academic performance?</b>
A	Yes
B	No
<b>10.</b>	<b>Do you experience any physical discomfort from excessive screen time?</b>
A	Yes
B	No
C	Sometimes
<b>11.</b>	<b>Do you engage in physical activities/exercise regularly in addition to screentime?</b>
A	Yes
B	No
C	Sometimes
<b>12.</b>	<b>Do you use any screen device during meals?</b>
A	Always
B	Often
C	Sometimes
D	Never
<b>13.</b>	<b>In what ways do you think screen time during meals affect your eating habits?</b>
A	I eat more
B	I eat less
C	I choose less healthy food
D	I am less aware of how much I eat
E	It doesn't affect my eating habits