

# **Prevalence and impact of the use of electronic gadgets on the health of youth**

## **Team Members:**

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## **1. INTRODUCTION**

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Use of technological gadgets has rapidly been increasing among adolescents, which may result in health issues and technology addiction. This study focuses on the prevalence of usage of technological gadgets and health-related complications among college going students.

The use of technological gadgets is growing at an unprecedented pace all over the world. In present times, not only adults but also children are overly invested in technological gadgets, which raises questions and concerns about their effects on children in terms of physical and mental development. Although technology has its contribution in breaking geographical barriers and making information accessible, however, technology has its own negative records as well. Today's technology-dependent global population is constantly adopting an unhealthy, sedentary lifestyle, putting them at risk for developing severe diseases and mental disorders. In regards to the situation in Asia, a previous study conducted on six Asian countries concluded that the adolescent cohort aged 12 to 18 years held 62% ownership of smartphones overall. The easy accessibility to gadgets and the internet in recent years has led to this cohort developing a keen interest about the internet's use, which further developed into an addiction.

## **2. METHOD**

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### **2.1. Study area and population**

A total of 143 students from different colleges participated in the study in which Indira college shown major participation. The children were asked questions relating to their access to electronic gadgets, time spent on outdoor activities, and whether they experienced any health-complications as an after-effect of the usage.

## 2.2. Data collection

The interviews were conducted based on a preformed questionnaire. The questionnaire consisted of three parts: socio-demographic properties, gadget usage, and physical problems encountered by the participants. The questionnaire was constructed in English to make it easily understandable. The sampling process was both random and purposive while students were chosen randomly.

## 2.3. Measurements

The association between various socio-demographic variables and gadget use was drawn by comparing the data obtained from the participants. The average daily screen time and sedentary behaviour of the participants were also recorded to observe if these factors influenced their physical and mental wellness. The physical and psychological concerns experienced by the participants such as headache, sleeping difficulties, backache, visual concerns, pain in the limbs, and depression were recorded too.

## 2.4. Statistical analyses

The statistical analyses of this study were performed using Pearson Chi-square statistics to test the association between gadget use and socio-demographic factors. Test result with less than .05 *P*-value is considered as statistically significant factors for gadget use. For testing the statistical significance of different categories of gadget use time, 5% level of significance is used.

### 2.4.1. dependency of screening time of electronic devices on gender

A total of 143 students participated in this study. Gender bias was minimized as the male (53.15%) to female (46.85%) ratio was close to 1.

Dependency of Screening time of electronic devices on gender

**OBSERVED FREQUENCY:**

<b>Screen Time -&gt;</b>	<b>Less than 1 hr</b>	<b>1-3 hrs</b>	<b>3-6hrs</b>	<b>Greater than 6 hrs</b>	<b>Total</b>
<b>Gender</b>					
<b>Male</b>	1	18	30	27	76
<b>Female</b>	2	29	26	10	67
<b>Total</b>	3	47	56	37	143

**EXPECTED FREQUENCY:**

<b>Screen Time -&gt;</b>	<b>Less than 1 hr</b>	<b>1-3 hrs</b>	<b>3-6 hrs</b>	<b>Greater than 6 hrs</b>
<b>Gender</b>				
<b>Male</b>	1.59440559	24.979021	29.7622378	19.6643357
<b>Female</b>	1.40559441	22.020979	26.2377622	17.3356643

**HYPOTHESIS:**

$H_0$ : Time spend on electronic devices is independent of gender.

$V_s$

$H_1$ : Time spend on electronic devices is dependent on gender.

**LEVEL OF SIGNIFICANT:**

We fix 5% level of significance.

LOS = 0.05

By calculating the p value using MS excel, we get

P value = 0.01490127

Here,

P value < LOS, therefore we reject  $H_0$ .

**CONCLUSION:**

Time spend on electronic devices are dependent on gender.

### 2.4.2. dependency of screening time of electronic devices on age

OBSERVED FREQUENCY:

Screen Time -> Age	Less than 1 hr	1-3 hrs	3-6hrs	Greater than 6 hrs	Total
15-18	0	13	19	13	45
19-22	3	33	34	21	91
22 and above	0	1	3	3	7
Total	3	47	56	37	143

HYPOTHESIS:

$H_0$ : The two attributes, Age and Screen time are independent.

$V_s$

$H_1$ : The two attributes, Age and Screen time are dependent.

EXPECTED FREQUENCY:

Screen Time -> Age	Less than 1 hr	1-3 hrs	3-6hrs	Greater than 6 hrs
15-18	0.94405594	14.7902098	17.6223776	11.6433566
19-22	1.90909091	29.9090909	35.6363636	23.5454545
22 and above	0.14685315	2.3006993	2.74125874	1.81118881

LEVEL OF SIGNIFICANT:

We fix 5% level of significance.

LOS = 0.05

By calculating the p value using MS excel, we get

P value = 0.62183428

Here,

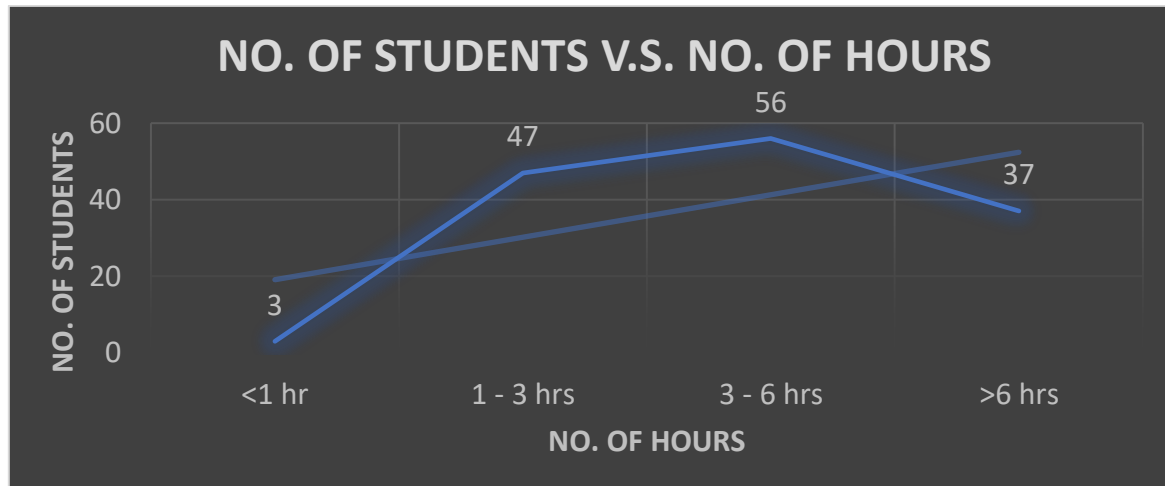
P value > LOS, therefore we accept  $H_0$ .

CONCLUSION:

The two attributes, Age and Screen time are independent

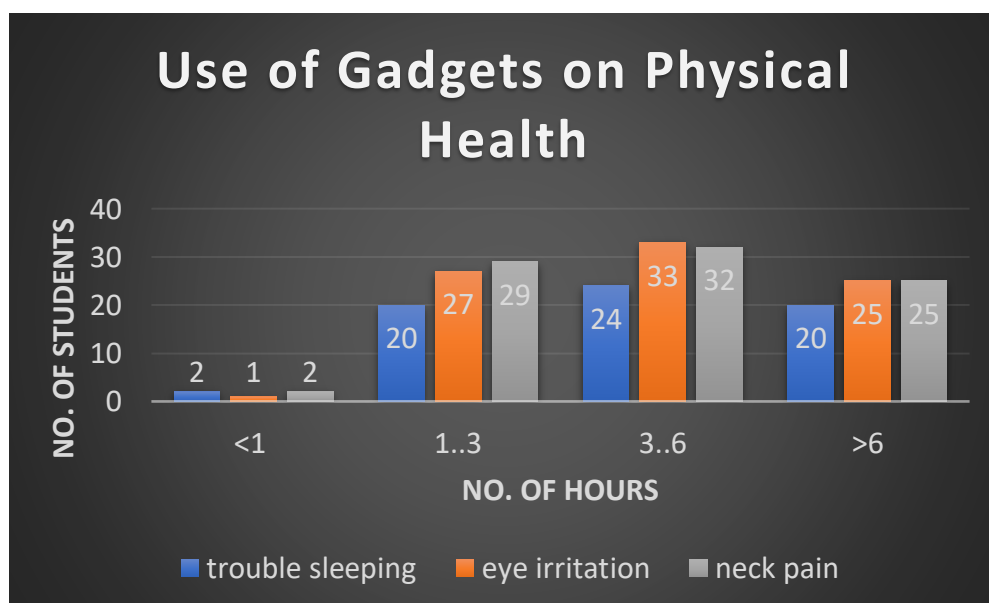
### 3. RESULT

#### 3.1. Use of gadgets and effect on physical activities and health



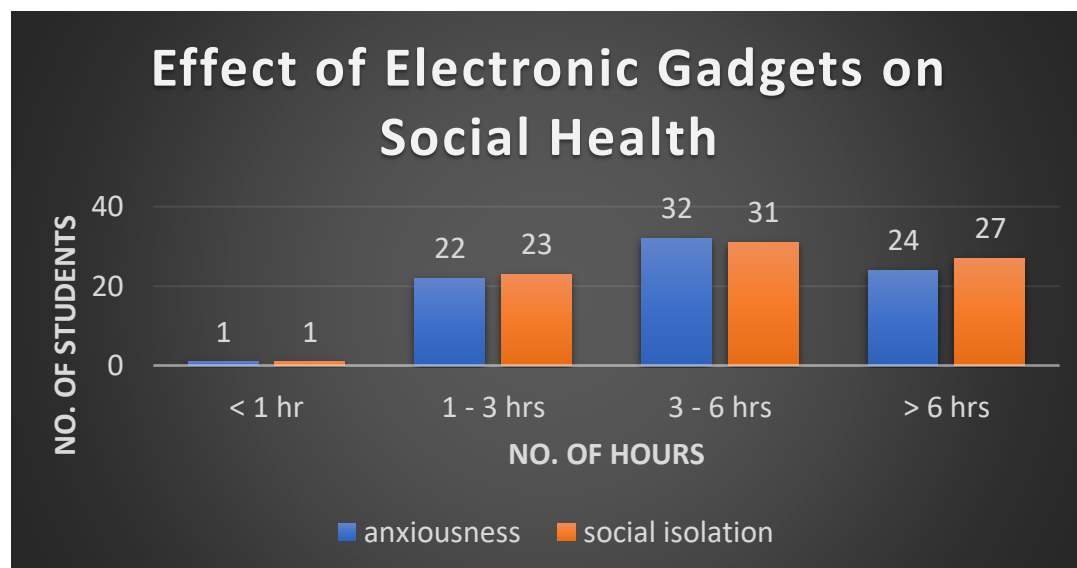
Prolonged use of gadgets has been observed among the participants. According to our data, only 32% of participants reported spending time on gadgets for less than 2 hours. Comparatively larger percentage of the participants (68%) spend more than 3 hours of time on gadgets

##### 3.1.1. Effect on physical health



Participants were found to be suffering from headache, sleep disturbances, and backache, pain in limbs, visual disturbance, or depression. 67 % of headache, 46 % of sleeping disturbance, 51 % of visual disturbance, and 61 % of neck pain of associated participants belonged to the group who use gadgets for more than 3 hours daily. Participants who less spend time with gadgets (1 - 2 hours) were found relatively healthier with less health complications.

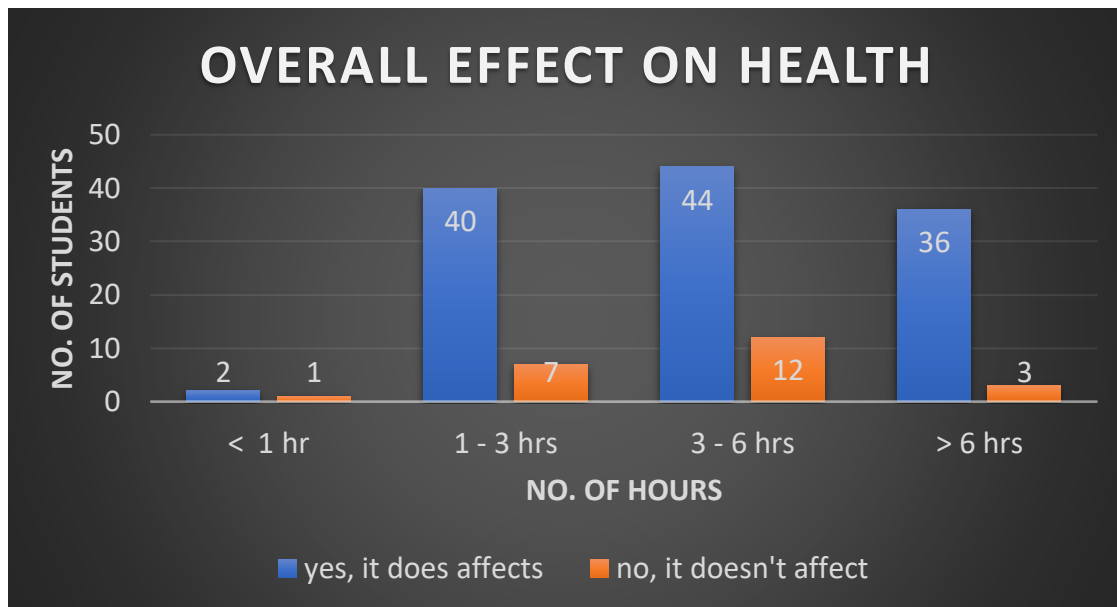
### 3.1.2. Effect on social health



It is observed that, 79 % students feel anxious or stressed while away from their gadgets and 82 % students use their devices instead of spending their time with their family and friends. This reduces.

From the collected data it is observed that students who spend more time (>3 hrs.) are more isolated and prefer to stay alone. They lack social skills which greatly impact on their mental health.

55.24% students become anxious without their mobile phones and 57.34% students prefer isolation.



The below chart is the overall effect on health according to participated students

86.31% Students themselves believe gadgets cause negative impact on them. And very few reject this claim.

Thus, overall gadgets cause negative impact on social and physical health.

## 5. CONCLUSION

According to this study, there is a significant relation of electronic gadget use with the level of education and gender. Unfortunately, gadgets have shown a notable effect on physical and mental health status. With the enormous amount of entertainment options, children tend to stick to their gadgets in their free time. The more frequent tendency of gadget use among adolescents is increasingly contributing to several physical health complications (e.g. headache, sleeping disorder). To ensure the health of the present generation and upcoming ones, parents should be more aware of their children's gadget use limits. Students should be more encouraged to spend time on physical activities and outdoor games. More studies need to be carried out regarding this issue in order to address the problem more precisely and strengthen the strategies further for the near future.