

**Third Eye Syndrome- a gadget screen addiction among medical professionals in Chennai, Tamilnadu, India.**

**U.PremKumar<sup>1</sup>, Prabakaran J<sup>2\*</sup>, S.Fahima<sup>3</sup>, Anjali Anil<sup>3</sup>, Balaji V<sup>3</sup>, Anushya A<sup>3</sup>, Aparajita.S<sup>3</sup>, Aeysha Siddique Shaik<sup>3</sup>**

**Affiliation:** 1. Asst.Prof. Department of Community Medicine ACS Medical College, Chennai. 2Associate professor, Department of Community Medicine, Madha Medical College& Research Institute, Chennai.3, MBBS student, Madha Medical College& Research Institute, Chennai.

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**\*Author for correspondence:** Dr.J.Prabakaran, Associate professor, Department of Community Medicine, Madha Medical College & Research Institute ( MMCRI), Kovur, Chennai- Pin 600128. E-mail: [prabakaranpro@gmail.com](mailto:prabakaranpro@gmail.com).

**ABSTRACT**

**Background:** Screen time refers to any and all time spent in front of any device with an electronic screen. Today's youth log a total of 10 hours and 45 minutes per day on screen. Sufficient severity may result in addiction to today's digital drug. Staring at electronic screen continuously for long time cause multitude of non-communicable diseases. **Objective:** 1.To deduce the Screen time among people highly proficient with the usage of electronic screen of gadget regularly 2.To investigate the degree of awareness in taking protective measures among people 3.To ascertain the impacts associated with higher screen time empirically. **Methods:** A cross sectional study was conducted among medical students, interns, doctor and non-medical staff using a strategically devised questionnaire prioritizing on usage and frequency **Results:** 1.Mean screen time accounts about 50 minutes sans disjunction 2. Night or Reading mode was used by 47% and remaining were not or used sometimes while some were oblivious 3.More than 50% staffs and students have experienced withdrawal symptoms. Inside of, 14% suffered panic, 15.7% sad, 3.9% stressed, 1% suicidal thoughts, 10% don't get sleep. Nearly half of them check their mobile up to five times in one hour and 10% check mobile more than 30 times. **Conclusion:** Screen addiction is at higher risk in this high tech era and the health effects are considered merely conjecture.

**Key Words:** Third Eye syndrome, Screen time, Addiction, Medical students, Doctor, Vision, Gaming disorder

**INTRODUCTION**

As technology becomes ubiquitous in our work and private lives, understanding how we interact with it is increasingly important. Modern media comes in many different visual formats, including print media (books, magazines, and newspapers), television, movies, video games, music, cell phones, various kinds of software, and the Internet which needs screen.<sup>1</sup>

Screen-time refers to any and all time spent in front of any device with an electronic screen, such as computers, televisions, video games, smartphones, iPads, tablets, laptops, digital cameras, e-readers, and so on.<sup>4</sup>The gadgets screen is considered as our third eye because it gives information beyond imagination. <sup>2</sup> At present we depend upon the third eye for information. As a corollary it is called by us the Third Eye Syndrome

The effects of screen usage on a person's depend on a number of factors. The most important factor is how long the person views the screen. Focusing on a screen for an extended period of time with no breaks can cause fatigue

and several other problems, both short-term and long-term. When we use screen long duration, it affects Brain's frontal cortex and has same effect as cocaine does.<sup>3</sup> We use gadgets for various purposes like playing games, watching videos, listening songs, chatting with their friends, browsing different websites and other educational and entertain purposes without paying attention to posture, screen brightness, and screen distance from their eyes which ultimately affect their vision and health.<sup>5</sup>

Media Use over Time Today, 20% of media consumption occurs on mobile devices—cell phones, iPods or handheld video game players. Today's youth pack a total of 10 hours and 45 minutes worth of media content into those daily 7½ hours per day.<sup>6</sup> Staring at electronic screen continuously for long time causes distress, low self-esteem, substance abuse, No interest and enjoyment in activities or Feels hopeless.<sup>7</sup> Too much gadget use can also affect the long-term vision problem.<sup>8</sup>

The behaviour pattern is of sufficient severity to result in addiction to a digital drug. Addiction is characterized by inability to consistently abstain, impairment in behavioural control, craving, withdrawal symptoms, diminished recognition of significant problems with one's behaviours and interpersonal relationships, and a dysfunctional emotional response. The two major categories of addiction involve either substance addiction, e.g. "drugs or alcohol addiction" or "behavioural addiction such as mobile phone addiction."<sup>9</sup>

International Classification of adds new groups of disorders-Gaming disorder or specified disorders due to addictive behaviors. It is a pattern of gaming behavior ("digital-gaming" or "video-gaming") characterized by impaired control over gaming, increasing priority given to gaming over other activities to the extent that gaming takes precedence over other interests and daily activities, and continuation or escalation of gaming despite the occurrence of negative consequences. It would normally have been evident for at least 12 months. ICD 11 classifies this under Disorders due to addictive behaviors with Gaming disorder, predominantly online (6C51.0), Gaming disorder, predominantly offline (6C51.1), Gaming disorder, unspecified (6C51.Z)<sup>10</sup>

An atmosphere of digital media has imbued this generation with screens. The highest screen usage in many forms are widely seen in our society. We assume this was highest in professional groups .The study focuses on evaluation of screen time and also adds the seriousness of addiction among health professionals in Chennai. The study also focused special interest on gaming disorder to evaluate the extents of it. It is important as it helps us to evaluate the impact of screen time and their views on its purpose and also its health risks. With this background we aimed our study to find out the usage pattern of gadget screen and screen addiction among staff and students of tertiary care centers in Chennai and propose recommendations to overcome screen addiction

## METHODS

This cross sectional study was strategically devised and conducted in Madha Medical College & Research Institute, Chennai, India during April 2018. The ethical clearance for the study was obtained from our Institutional Ethics Committee prior initiating the study. The sample size was calculated to 208 with the expected prevalence of 50%, Confidence limit of 95% and population size of 450.

The study included Doctors, medical Students, Compulsory Rotatory Residential Internship (CRRI) and non-medical staff of our institute. We followed a Stratified Random Sampling to choose our responders. Accordingly 42 doctors, 96 medical students, 33 CRRI and non-medical staff 37 were chosen randomly using attendance roll. They were contacted for the study and collected information after obtaining digitally signed

informed consent. People were contacted until we get the desired sample size in each group.

The gadget screen addiction was operationally defined by our team. Three factors were chosen to quantify the screen addiction. These includes using gadget screen more than 6 hours day, checking gadget more than 30 times in one hour and having withdrawal symptoms like fear, angry, sad, suicidal tendency, stress etc. Presence of any one of the above criteria is termed pre-screen addiction, having any two of the criteria termed pre-screen addiction and presence of all the three criteria termed Severe Addiction. Others were considered non-addiction. Screen includes mobile, television, desktop screen, laptop, ipad and other gadgets on use.

The tool for data collection were prepared by staff of community medicine department after detailed literature search. The broad areas covered in that questionnaire were Knowledge, practice and attitude on gadget screen usage. The tool was tested with few staff and students for feasibility and quality and feedback on the same was also collected. Then a meeting to finalise the tool with our staff along with a psychiatrist was organized. The whole process of finalising the tool 10 days.

As this study deals with the screen time, we wanted to collect the data through gadgets. So we converted the whole questionnaire as a form in Google Form using our department Google id. After that we have trial the form internally to look any error in the tool. After making few corrections, the tool was completely ready.

We have given training to 30 medical students on mobile and other gadgets technologies and their usage and different problems encountered after prolonged use indifferent setting and screen addiction. The training was conducted in community medicine department with community physician, psychiatrist and a bio-medical engineer. We have chosen 15 students finally based on their proficiency in mobile technology and availability of internet mobile. The final questionnaire was shared to our data collectors.

The institute has given approval for data collection during the working hours. The allotted room was used for data collection to maintain the confidentiality and eliminate other disturbances during the survey. All the quality control measures were followed during and after data collection. The overall data collection took 10 working days.

The data in the Google form was initially converted in to Google sheets and then downloaded in Microsoft Excel. After the conversion the data in the Google server was completely deleted for security reasons. The data was analysed using IBM SPSS Software version 20. The data was presented in tables and figures and performed percentages, chi-square test. The p-Value <0.05 was taken as significant.

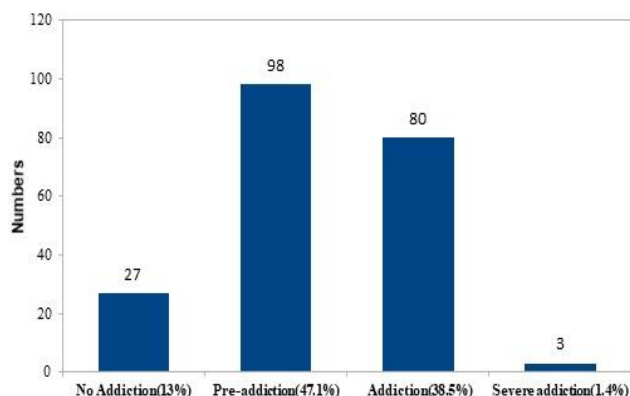
## RESULTS

The mean age of participants was 26.49 years (Male: 25.02; Female 27.56 years). Among the participants, 46.15% were medical students, 20.19 % medical doctors, 15.87% CRRIs and 17.79% Non-medical staff. Interestingly 44.71% of participants' uses spectacles with more than 50% students uses them (Table 1). Mean Sleeping Hours: 7.22 Hours (SD: 1.93) and 10.1 %(n=21) slept less than 6 hours.

**Table1.Characteristics of participants in the study and usage of spectacles among them.**

| Respondents        | Female<br>42.30% | Male<br>57.70% | Total<br>(%)<br>100% | Mean<br>Age<br>(Yrs) | Usage of<br>spectacles |
|--------------------|------------------|----------------|----------------------|----------------------|------------------------|
| Doctors            | 13               | 29             | 42(20.19)            | 38.76                | 19(45.23)              |
| House Surgeon      | 13               | 20             | 33(15.87)            | 22.97                | 10(30.30)              |
| Non-medical staffs | 16               | 21             | 37(17.79)            | 32.97                | 13(35.14)              |
| Student            | 46               | 50             | 96(46.15)            | 19.82                | 51(53.13)              |
| Total              | 88               | 120            | 208(100)             | 26.49                | 93(44.71)              |
| Mean Age (Yrs)     | 25.02            | 27.56          | 26.49                | SD:1<br>0.87         |                        |

**Figure 1. Types of mobile phone addiction among responders in the study**



We asked certain questions to know their views in screen time and their attitude and practice. Most of them(43.75%) felt that it will acceptable to use screen 15- to 30 minutes and 6% felt to use 2-3 hours continuously. Around 30% felt that 30 minutes rest will be required for eyes after prolonged use of screen. Also 47% of people conveyed that sitting position will be better for screen use. The varying degree effects of prolonged use per day states includes eye problems head headache followed by insomnia, stress, body aches etc. Night or Reading mode was used by 47% and remaining were not or used sometimes while some were oblivious. Among participants, 46.2% were could not stay without internet for a day. More than 50% staffs and students have some sort of withdrawal symptoms. In that 14% became panic, 15.7% sad, 3.9% stressed, 1% suicidal thoughts,10% won't get sleep. Nearly half of them check their mobile up to five times in one hour and 10% check mobile more than 30 times (Table 2).

**Table 2. Knowledge and practice of screen usage among participants in the study**

| Particulars                                                | No  | %     | other                                 |
|------------------------------------------------------------|-----|-------|---------------------------------------|
| Acceptable duration usage of screen continuously (minutes) |     |       |                                       |
| < 15                                                       | 20  | 9.62  |                                       |
| 15-30                                                      | 91  | 43.75 |                                       |
| 30-45                                                      | 20  | 9.62  | Mean:<br>50.97<br>min. ;<br>SD: 43.06 |
| 45-60                                                      | 34  | 16.35 |                                       |
| 60-120                                                     | 24  | 11.54 |                                       |
| 120-180                                                    | 12  | 5.77  |                                       |
| According to comfort                                       | 7   | 3.37  |                                       |
| Duration of rest needed after prolong use of screen(min)   |     |       |                                       |
| 5                                                          | 27  | 12.98 |                                       |
| 10                                                         | 32  | 15.38 |                                       |
| 15                                                         | 56  | 26.92 |                                       |
| 30                                                         | 69  | 33.17 | Mean:<br>25.5 min.<br>; SD:<br>25.56  |
| 45                                                         | 1   | 0.48  |                                       |
| 60                                                         | 6   | 2.88  |                                       |
| >120                                                       | 8   | 3.85  |                                       |
| Depending on usage/necessity                               | 5   | 2.4   |                                       |
| Preferred position of Gadget use                           |     |       |                                       |
| Sitting                                                    | 98  | 47.1  |                                       |
| Lying                                                      | 91  | 43.3  |                                       |
| Standing                                                   | 19  | 9.6   |                                       |
| Effects of prolonged screen use*                           |     |       |                                       |
| Eye Problem                                                | 99  | 37.08 |                                       |
| Head ache                                                  | 78  | 29.21 |                                       |
| Insomnia                                                   | 22  | 8.24  |                                       |
| Stress/Psychological problem                               | 15  | 5.62  | * Multiple options                    |
| Body ache or Tiredness                                     | 25  | 9.36  |                                       |
| Nothing                                                    | 22  | 8.24  |                                       |
| Don't Know                                                 | 6   | 2.25  |                                       |
| Usage of Night or reading mode                             |     |       |                                       |
| Always                                                     | 96  | 46.2  |                                       |
| No                                                         | 92  | 43.8  |                                       |
| Sometimes                                                  | 20  | 9.6   |                                       |
| Stay without internet for one day                          |     |       |                                       |
| Yes                                                        | 96  | 46.2  |                                       |
| No                                                         | 81  | 38.9  |                                       |
| Maybe                                                      | 31  | 14.9  |                                       |
| Withdrawal symptoms                                        |     |       |                                       |
| Yes                                                        | 115 | 55.3  |                                       |
| No                                                         | 93  | 44.7  |                                       |
| Frequency of mobile use in one hour period                 |     |       |                                       |
| 0-5                                                        | 106 | 51    |                                       |
| 05-Oct                                                     | 42  | 20.2  |                                       |
| Oct-15                                                     | 14  | 6.7   | Mean:<br>13.57 ;<br>SD: 17.04         |
| 15-30                                                      | 23  | 11.1  |                                       |
| >30                                                        | 23  | 11.1  |                                       |
| Total                                                      | 208 | 100   |                                       |

**Table 3. Duration of screen usage per day and addiction among participants in the study**

| Total Use of Screen (%) | Doctors    | House Surgeon | Non-medical staffs | Students    | Total       |
|-------------------------|------------|---------------|--------------------|-------------|-------------|
| <1 hr                   | 4          | 0             | 6                  | 4           | 14(6.73)    |
| 1-2 hrs                 | 14         | 3             | 12                 | 12          | 41(19.71)   |
| 2-3hrs                  | 9          | 8             | 6                  | 13          | 36(17.31)   |
| 3-4hrs                  | 4          | 5             | 7                  | 16          | 32(15.38)   |
| 4-5hrs                  | 2          | 7             | 2                  | 21          | 32(15.39)   |
| 5-6hrs                  | 6          | 1             | 3                  | 11          | 21(10.1)    |
| >6hrs                   | 3          | 9             | 1                  | 19          | 32(15.38)   |
| Mean hours of usage(SD) | 3.4 (1.98) | 5.67 (3.37)   | 2.97 (1.78)        | 5.24 (3.20) | 4.53 (2.99) |
| Screen Addiction n(%)   | 16 (38.1)  | 10 (30.30)    | 15 (40.54)         | 42 (43.74)  | 83 (39.90)  |

Further 12.5% (n=26) said they could not avoid use mobile while driving and 60.6 % (n=126) said they can restrict use half an hour before & after sleep. What Sapp was a major application (85%), followed by You tube (34%) used by them.

The mean screen time per day was 4.53 hours (SD: 2.99). Higher usage was seen in in CRRIs (5.67 hours/per day) followed by Students (5.24 hours/per day). The usage was higher in males (4.97 hours) and females 3.94 hours. And 14% used less than one hour and 32% of them uses more than six hours. Out of 208 persons, 83(39.9%) had got screen addiction as per our criteria and it was higher in students followed by doctors, non-medical staff and CRRIs (Table 3). And severe addiction was seen in 3 individual s(1.4%) and addiction seen in 38.5% of respondents(Figure 1). Screen addiction was higher in males (46.99%) than females (53.01%). Female predominance of addiction in all occupational groups except in the doctors' group.

## DISCUSSION

The prevalence of screen addiction in our study was 39.9% using our criteria. The limitation of this criterion is not validated with other scales. Prevalence of mobile phone overuse depends largely on definition and thus the scales used to quantify a subject's behaviours. Two scales are in use, the 20-item self-reported Problematic Use of Mobile Phones (PUMP) scale, and the Mobile Phone Problem Use Scale (MPPUS).<sup>11</sup> The prevalence among British adolescents aged 11–14 was 10%. In India, addiction is stated at 39-44% for this age group. Under different diagnostic criteria, the estimated prevalence ranges from 0 to 38%.<sup>12</sup> About 8% to 12% of children and adults have SDD(Screen Dependency Disorder) in India<sup>13</sup> Average expose a student aged 8-18 years to media for more than ten hours a day.<sup>14</sup>

Technology is now driving our life values and Smartphones are actually changing social relationships. The advancement of the technology is not what is alarming, but rather people's misuse and excessive engagement with their devices, so most of adolescents are exposed to the media applications and instant mobile broadband access involved with the evolution of Smartphone .Many social media tools are available for health care professionals (HCPs), including social networking platforms, blogs, microblogs, wikis, media-sharing sites, and virtual reality and gaming environments.<sup>15</sup> A survey of more than 4,000 physicians conducted by the social media site QuantiaMD found that more than 90% of physicians use some form of social media for personal activities, whereas only 65% use these sites for professional reasons.<sup>16</sup>

Over a year, a kid spends up to 114 full days watching a screen for fun apart from the time they spend on the computer at school for educational purposes or at home for homework.<sup>17</sup> Youth aged 15-18 years spend about 7.5 hours per day in front of a screen. The CDC recommends kids get at least 60 minutes of physical activity each day instead they can play, walk, run and favorite physical or social activities. CDC Recommends limits children screen time between 1-2 hours per day.<sup>18</sup> The American Academy of Pediatrics (AAP) recommends 18 months and younger: no screen time is still best except family chat, 18 months to 2 years: limit screen time and avoid solo use. 2 to 5 years: limit screen time to an hour a day. 2 to 5 years: limit screen time to an hour a day.<sup>19</sup> High usage of gadgets, such as mobile, TV, Tablet, laptop's screen have increased among us. The extensive usage leads an impaired control over screen to result in significant impairment in personal, family, social, educational, occupational or other important areas of functioning like substance abuse.<sup>20</sup> Adapting one's work environment, wearing glasses, adjusting appropriate lighting, along with scheduled breaks from the computer, will maintain one's health and enhance one's ability for comfortable viewing.<sup>21</sup> The warning symptoms like impaired control over watching, increased priority given and continuation or escalation of watching despite the occurrence of negative consequences. The pattern of such behavior may be continuous or episodic and recurrent(ICD-11). Hence these persons should need medical treatment or psychological counseling.

Parents underestimate their children's use of electronic media.<sup>22</sup> Hence poor monitoring and support acquired. Electronic media before sleep can curtail sleep time and result in self-perceived insufficient sleep. Studies suggest that gaming disorder affects only a small proportion of people who engage in digital- or video-gaming activities. But this should be monitored based on the amount of time they spent or signs of changes in their physical or psychological health and social functioning that could be attributed to their pattern of gaming behavior<sup>23</sup>

We can't say the usage is harmful. The modern gadgets help to develop their learning skills faster as they are more interested in gadgets than books.<sup>24</sup> Adolescents use technology for gratification, which includes self-development, wider exposure, user friendliness, relaxation, career opportunities, and global exchange.<sup>25</sup> Putting standard timeline for usage is difficult hence usage is personalized and use caution.

#### Conclusion:

Like many other aspects of our fast-paced but often sedentary lifestyle, screen-time is introducing new variables into the health equation. Evidently, digital screen is a staple of contemporary life. Mobile phone is used predominately for entertainment purpose rather for communication. Though the electronic gadgets are rich source of resources, its addiction is equally threatening. Teens and youth are most vulnerable prey for the modern invasion. Less sleeping hours affects their normal activity. Screen time addiction is at higher risk. The effects of screen time addiction have already imposed enough claudication of basic thinking. All the horrid implications should be well considered

#### Recommendations:

The development of policies to raise awareness about this issue by Indian governments for better future of Indian adolescents as a priority action is needed. The efficient use of mobile phone for necessary activities is advised. Limited overall screen time is recommended. Wearing glasses and appropriate brightness can reduce the health risk. Proper sitting position while accessing screen time is recommended. Eye rest after a prolonged use can be relieving. Limited screen time is necessary. Proper distance from the screen is advised. Screen time reminder application can also help. "No-gadget" time should be made everyday to stay away from it and connect more to the surrounding. Rewire and retrain the brain by being intentional to reduce our screen time. It is much easier to start at young. Rewire and retrain the brain by being intentional to reduce our screen time. It is much easier to start at young.

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