

The Prevalence of Poor Attention among Higher Secondary Students of Ahmedabad: An Observational Study

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Abstract: ***Background & Need of Study:** Many students struggle with maintaining attention due to the growing influence of digital distractions, stress, and other environmental factors so Smartphone addictions had a negative effect on sleep quality, attention, cognitive function, and memory processing. Every student will struggle to pay attention in class at one point or another. The attention span is shrinking, the average attention span has been reduced from 12 seconds in the year 2000 to eight seconds now. Thus, the need arises to do this study. **Aim and Objectives:** The aim of the study is to find out prevalence of poor Attention among higher secondary students. **Method:** An observational study with total 110, both male and female of higher secondary students from Ahmedabad city was taken. Participant was screened. Subject with age of 15-17 years was included. Subject with attention deficit/hyperactivity disorder was excluded. Consent form was taken from subjects than Mindful Attention Awareness Scale (reliability 0.86) was filled. Analysis of subjects was done. **Result:** A total of 110 participants in the Age range of 15-17 years were assessed and included. There were 43.63% female and 26.36% male students included in the study. The above table depicts the Mean age of students as 15.84 and the Mean of Mindful Attention Awareness Scale scoring as 3.93. P value is 0.0001, which is less than 0.05, which conclude that it is significant. In Mindful Attention Awareness Scale 4.50% students having almost always poor attention, 11% students having very frequent poor attention, 26% students somewhat frequent attention, 25.45% students somewhat infrequent attention, 26.39% student very infrequent attention issue 11.81% almost never **Conclusion:** According to findings, the study concludes that there are most students having almost always and very frequent attention issues.*

Keywords: Mindful attention awareness scale [MAAS], Higher secondary students, Attention

1. Introduction

Attention is a core cognitive process that enables individuals to selectively focus on relevant stimuli while filtering out irrelevant information. It is fundamental for learning, memory encoding, executive functioning, and academic achievement¹. Sustained attention, in particular, is essential for completing complex academic tasks and maintaining cognitive efficiency over time¹.

Adolescence represents a critical period of neurodevelopment characterized by ongoing maturation of the prefrontal cortex, which governs executive functions such as attention control, decision-making, and working memory³. During this stage, individuals are highly susceptible to environmental and behavioural influences that may either enhance or impair cognitive performance.

A 2026 scoping review reported that widespread smartphone exposure during adolescence affects brain function, emotional regulation, and cognitive processing due to ongoing neuroplasticity³. Recent evidence indicates a rising prevalence of attention difficulties among adolescents, largely attributed to increased exposure to digital technologies, multitasking behaviour, and lifestyle modifications². Excessive engagement with smartphones and social media platforms leads to

fragmented attention, reduced cognitive control, and impaired information processing²⁶. Furthermore, sleep deprivation, which is increasingly common among adolescents due to late-night screen exposure, significantly disrupts attentional processes and neurocognitive performance³⁷. These factors collectively contribute to reduced academic efficiency and increased cognitive fatigue.

Background and Need of the Study

Attention deficits in school-going adolescents have emerged as a significant public health and educational concern. Contemporary research highlights that non-clinical attention impairments are increasingly prevalent and often remain undiagnosed, thereby affecting academic outcomes and psychological well-being².

Determinants of Poor Attention:

- **Digital Overuse and Media Multitasking:** Frequent switching between digital tasks reduces the brain's ability to sustain attention and weakens cognitive control mechanisms⁶.
- **Sleep Disturbance:** Inadequate sleep duration and poor sleep quality are strongly associated with impaired attention, slower cognitive processing, and decreased alertness³⁷.
- **Psychological Stress:** Academic pressure and performance anxiety negatively affect working memory and attentional capacity⁸.

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- **Reduced Physical Activity:** Sedentary behaviour is linked with decreased cerebral blood flow and reduced cognitive performance⁴.

Need of the Study: Despite global evidence, there is limited region-specific data in Indian populations, particularly among higher secondary students in Ahmedabad. Identifying the prevalence of poor attention is essential for: Designing early intervention strategies, preventing long-term academic decline, Developing physiotherapy-based cognitive rehabilitation programs

2. Aim and Objectives

Aim:

To determine the prevalence and severity of poor attention among higher secondary students in Ahmedabad.

Objectives:

- 1) To quantitatively assess attention using the Mindful Attention Awareness Scale (MAAS).
- 2) To determine the proportion of students exhibiting reduced attention levels.
- 3) To analyse the distribution and severity of attention deficits.
- 4) To correlate findings with known contributing factors such as digital exposure and sleep disturbances²³.

Review of Literature

Rosen et al. (2014): Rosen et al. investigated the impact of media and technology use on adolescents' attention and academic performance. The study reported that increased screen time and frequent media multitasking were significantly associated with decreased attention span, poor academic outcomes, and behavioural disturbances². The authors concluded that constant digital engagement disrupts sustained attention and cognitive efficiency.

Ophir et al. (2009): Ophir et al. examined cognitive control among heavy media multitaskers and found that individuals engaged in frequent multitasking showed significantly poorer performance in attention-demanding tasks⁶. The study demonstrated that media multitasking reduces the ability to filter irrelevant stimuli and weakens executive control processes.

Levenson et al. (2016): Levenson et al. explored the association between social media use and sleep disturbance. Their findings indicated that increased social media usage, especially during nighttime, was significantly associated with poor sleep quality, which subsequently impaired attention and cognitive performance³. This study highlights the indirect pathway linking digital exposure to attention deficits via sleep disruption.

Yogesh et al. (2024): A recent study conducted in Gujarat evaluated the relationship between smartphone addiction and mental health among adolescents. The results revealed a strong

correlation between excessive smartphone use and reduced attention, increased anxiety, and poor psychological well-being⁹. This regional evidence supports the findings of the present study population.

Yan et al. (2024): Yan et al. conducted an experimental study using electroencephalography (EEG) to assess the impact of mobile phone usage on attention networks. The study demonstrated that prolonged smartphone exposure alters neural activity associated with attention control and reduces cognitive processing efficiency⁶. This provides strong neurophysiological evidence for attention impairment due to digital overuse.

3. Methodology

- 1) **Study design:** Observational cross-sectional study.
- 2) **Informed consent:** The purpose of the study was thoroughly explained to participants, who were provided with an information sheet. Written informed consent was obtained from all participants, ensuring their rights were protected.
- 3) **Study setting:** Higher secondary schools in Ahmedabad.
- 4) **Study duration:** Conducted between July 2023 to January 2024.
- 5) **Sampling technique:** Convenience sampling method.
- 6) **Procedure:** Participants were briefed on the study's purpose and relevance. Demographic data including name, age, height, weight, and body mass index were recorded. Participants meeting inclusion and exclusion criteria were randomly selected.
- 7) **Sample size:** 110 students (both male and female). A total of 160 subjects were screened, of which 110 were recruited based on willingness to participate. The sample size was calculated using the OpenEpi app.
- 8) **Inclusion criteria:** Age between 15–17 years, Willing participation with informed consent
- 9) **Exclusion criteria:** Diagnosed ADHD or neurological disorders, Psychiatric conditions affecting cognition
- 10) **Outcome Measure:** Mindful Attention Awareness Scale (MAAS): A validated self-report instrument used to assess present-moment awareness and attention. It demonstrates good internal consistency (Cronbach's alpha \approx 0.86)⁵.
- 11) MAAS questionnaire administered under supervision. Data recorded systematically for statistical analysis

Statistical analysis

Data analysis was performed using SPSS software. Descriptive statistics (mean, standard deviation) were calculated. Normality was assessed prior to inferential testing. Non-parametric tests were used where appropriate. Statistical significance was set at $p < 0.05$. The obtained **p-value (0.0001)** indicates a highly significant result, confirming the presence of attention deficits within the study population.

4. Results

A total of 110 participants were included in the study. **Mean age was 15.84 years. Mean MAAS score was 3.93.** Table 1 showed age and MAAS mean values.

Table 1: Mean values of Age and MAAS

Mean	Mean values
Age	15.84
MAAS	3.94

The MAAS score indicates reduced levels of mindfulness and attentional awareness among participants⁵. The statistically significant p-value (0.0001) suggests that the prevalence of poor attention is not due to chance and reflects a true underlying issue within the population. A majority of students demonstrated **frequent to very frequent lapses in attention**, indicating compromised cognitive functioning. A total of 110 participants in the Age range of 15-17 years were assessed and included. There were 43.63% female and 26.36% male students included in the study. The above table depicts the Mean age of students as 15.84 and the Mean of Mindful Attention Awareness Scale scoring as 3.93. P value is 0.0001, which is less than 0.05, which conclude that it is significant. In Mindful Attention Awareness Scale 4.50% students having almost always poor attention, 11% students having very frequent poor attention, 26% students somewhat frequent attention, 25.45% students somewhat infrequent attention, 26.39% student very infrequent attention issue 11.81% almost never

5. Discussion

The findings of the present study reveal a **high prevalence of poor attention among higher secondary students**, which aligns with existing literature on adolescent cognitive health²⁶. One of the primary contributing factors is excessive smartphone usage, which promotes multitasking behavior and reduces sustained attention capacity²⁶. This leads to superficial information processing and decreased academic efficiency. Sleep disturbance is another critical factor. Adolescents who engage in late-night screen use experience disrupted circadian rhythms, leading to impaired attention, reduced alertness, and cognitive fatigue³⁷. Additionally, academic stress and performance pressure negatively impact attentional control and working memory, further exacerbating cognitive deficits⁸. From a neurocognitive perspective, repeated exposure to distractions weakens attentional networks and reduces the brain's ability to maintain focus over extended periods⁶.

Clinical and Educational Implications:

Early screening for attention deficits in schools is essential. Physiotherapists can incorporate **cognitive training and relaxation techniques**. Mindfulness-based interventions have shown effectiveness in improving attention and executive control⁵

6. Conclusion

This study demonstrates that **poor attention is highly prevalent among higher secondary students in Ahmedabad**. The findings highlight the significant impact of modern lifestyle factors, including digital overuse, sleep deprivation, and academic stress, on cognitive functioning²³. Early identification and targeted interventions are necessary to improve attention, enhance academic performance, and promote overall well-being.

7. Recommendations

Implementation of **school-based screening programs**. Promotion of **sleep hygiene practices**. Encouragement of **physical activity and exercise**. Integration of **mindfulness and cognitive training programs**. Limitation of excessive smartphone usage²³

8. Limitations

Small sample size limits generalizability. Study restricted to a single geographic region. Self-reported questionnaire may introduce response bias

9. Future scope

Large-scale multicentric studies across different regions. Longitudinal studies to assess causal relationships. Intervention-based research focusing on improving attention

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