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Association Between Short-Form Video Screen Time and Attention- Deficit Hyperactivity Disorders-like symptoms Among College Students in Dhaka: A Cross-Sectional Study

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Abstract

Background: The use of short-form videos such as Reels and Shorts has increased rapidly among students. There is growing concern that excessive screen exposure may affect attention span and executive function, especially in individuals who are more prone to ADHD-related symptoms.

Objective: To examine the relationship between daily short-form video screen time and ADHD-like symptoms among college students in Dhaka.

Methods: A cross-sectional survey was conducted among 305 students aged 14–21 years from selected colleges in Dhaka. ADHD-related symptoms were assessed using the World Health Organization Adult ADHD Self-Report Scale (ASRS v1.1). Participants reported their average daily time spent watching short-form videos. Data were analysed using descriptive statistics and correlation methods.

Results: The majority of participants (63%) reported spending 2–4 hours per day on short-form videos. Overall, 43.3% screened positive for ADHD-like symptoms. A clear trend was observed, where higher screen time was associated with a higher proportion of positive ADHD

screening, increasing from about 15% in the less-than-1-hour group to more than 60% in the more-than-4-hours group.

Conclusion: Higher consumption of short-form videos was associated with increased ADHD-like symptoms among students. Although causation cannot be established, excessive screen exposure may negatively influence attention and executive functioning. Encouraging balanced digital habits may help improve focus and cognitive performance in students.

Keywords: ADHD symptoms, short-form video, screen time, attention, ASRS, students, Dhaka

Introduction

In the high-pressure academic environment of Dhaka, students are increasingly turning to short-form videos like Reels and TikTok as a quick escape from stress. But as a medical student, I've started noticing that this isn't just "relaxing", it's actually changing how we focus. This study looks at how these micro-videos affect college students in Dhaka, particularly those who already show signs of ADHD (attention deficit hyperactivity disorder). It's becoming harder for us to sit through a long lecture or even finish a clinical history without feeling the urge to check our phones.[1]

The core of the issue lies in the dopaminergic reward pathway. Every time we scroll and find a new, catchy video, our brain gets a tiny "hit" of dopamine. It's like a constant loop of intermittent reinforcement that keeps the nucleus accumbens fired up.[2] For someone prone to ADHD, their brain is already struggling with dopamine regulation. When they spend hours on these apps, they are essentially overstimulating their reward system, which eventually leads to executive dysfunction. The prefrontal cortex, which we need for sustained concentration and decision-making, just gets exhausted. [1]

While we spend so much time studying the pathophysiology of various diseases, we often ignore what's happening to our own cognitive health. In this research, I've analysed data from 305 students to see if there's a real clinical link between this constant "digital scrolling" and a worsening of inattention and hyperactivity. By understanding how this affects college-going students in Dhaka, we can hopefully figure out if we are losing our ability to maintain deep focus in an era of instant gratification.

The relationship between digital media consumption and cognitive health has become a major focus in recent neurobiological research. This section reviews existing literature on how short-form content affects the human brain.

The "Goldfish Effect" and Attention Span

Recent studies suggest a rapid decline in the human attention span, often termed the "Goldfish Effect." Research conducted by Microsoft indicated that the average human attention span dropped from 12 seconds in 2000 to just 8 seconds in recent years. This correlates with the rise of Short-Form Video Content (SFVC) like Reels and TikTok, which conditions the brain to process information in fragmented bursts rather than sustained periods.[3]

Dopamine Dysregulation and Reward Circuitry

Neuroscientifically, short-form videos act as a High-Frequency Intermittent Reinforcement system. Each swipe triggers a release of dopamine in the Nucleus Accumbens, the brain's reward center. [4] Literature suggests that constant exposure to these "micro-rewards" leads to Dopamine Dysregulation, where the brain becomes desensitized to low-stimulation activities such as academic studying or long-form reading.[2]

The Concept of "Acquired ADHD"

While ADHD is traditionally viewed as a neurodevelopmental disorder, contemporary researchers are exploring "Acquired ADHD". This theory suggests that excessive screen time can impair the Prefrontal Cortex (PFC), the area responsible for executive functions like planning and impulse control. Over-stimulation from digital platforms can mimic the symptoms of clinical ADHD, even in individuals without a genetic predisposition.[5]

Cognitive Overload and Maladaptive Coping

For high-achieving students, the use of Reels often serves as Digital Escapism. According to Cognitive Load Theory, the brain has a limited capacity for processing information. When students use scrolling as a "break" from academic pressure, they inadvertently cause Sensory Overload. Instead of recovery, the brain experiences Cognitive Fatigue, which further diminishes their ability to focus on complex tasks.[6]

Methodology

In this study, I wanted to find out how watching short videos (Reels/Shorts) affects our focus. Here is how I conducted the research:

1. Who participated?I collected data from 305 students in Dhaka. Most of them are aged between 14 and 21. Since I wanted to see the impact on high-performing students, I focused on colleges like Holy Cross, VNC, and Dhaka City College.
2. What tools were used?I used a Google Form to reach the students. To measure attention problems accurately, I used the ASRS (Adult ADHD Self-Report Scale) v1.1 which is a world-recognized tool by the WHO.• I translated the ASRS questions into easy Bangla so that the

students could answer honestly without any confusion.• The survey asked about their daily screen time and 18 specific symptoms of ADHD, like forgetting things, feeling restless, or having trouble finishing tasks.

3. How were they scored?To keep the results scientific, I followed the standard ASRS scoring:• If a student answered "Often" or "Very Often" to the key focus-related questions, I categorized them as "ADHD Positive Screen."• Note: This doesn't mean they have a permanent medical condition; it just means they are currently showing high symptoms of ADHD due to their habits.

4. Data ProcessingAfter getting the responses, I used Python to analyze the data. I compared the screen time of students who had focus issues with those who didn't to see if there was a clear link.

5 Data privacy and Ethical Consideration

Participant information was collected confidentially. Although names were recorded during data collection for response verification, all personal identifiers were removed before data analysis and reporting. No individual participant can be identified from the presented results. Participation was voluntary, and responses were used solely for academic research purposes. This study followed the basic ethical principles of confidentiality and data protection. Ethical approval was not required as this was an anonymized survey-based study with no intervention on participants."

6.Statistical Analysis :-

Data were analyzed using Python. Descriptive statistics were calculated as frequency and percentage. A Chi-square test was used to assess the association between screen time and ADHD screening status. A p-value <0.001 was considered statistically significant.

Results

Association Result

There was a statistically significant association between daily screen time and ADHD screening status (Chi-square test, $p < 0.001$), indicating that higher screen exposure was linked with increased ADHD-like symptoms.

Demographic Result:

To understand how Reels affect students, we first need to look at who these 305 people actually are. Most of them are in the middle of a very intense life stage, living in one of the busiest cities in the world.

1.The Age Factor:

The participants are aged between 14 and 21, with most being around 19 years old. In simple clinical terms, this is a period of "Executive Function" development. Think of Executive Function as the "manager" of the brain that helps us plan and stay focused.

Because this "manager" is still growing in teenagers and young adults, their ability to say "no" to an interesting video is naturally weaker. When a student in this age group starts scrolling, their brain gets caught in a Dopamine Loop—a cycle where the brain keeps asking for "one more video" because it's an easy way to feel good.

2. The Academic Pressure Cooker

A huge portion of our data comes from Dhaka's most competitive colleges. Holy Cross College made up the largest group at 21.64%, followed by Dhaka City College (12.13%), Bangladesh Navy College (11.48%), and Samsul Haque Khan School & College (10.16%).

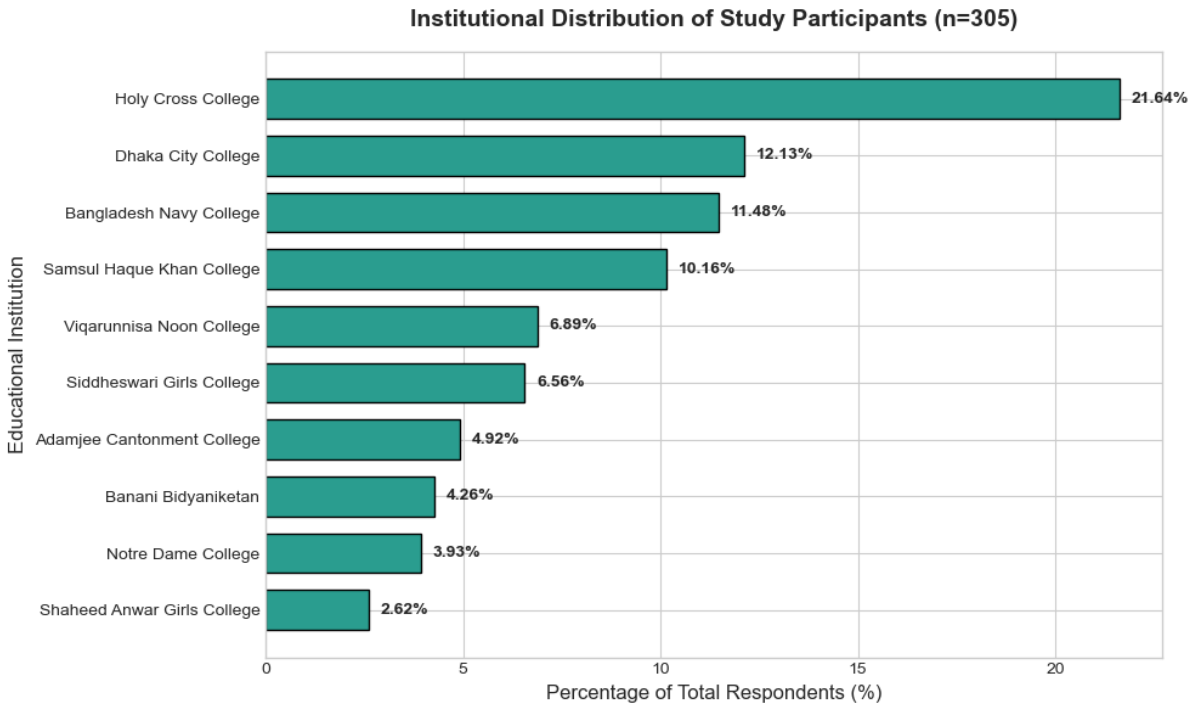

Figure 1:- Distribution of College Students in Research Data

For a student at a top-tier college, life is often a "pressure cooker." Between 8 AM classes, private coaching, and family expectations, there is very little "blank space" in their day. We found that students often turn to Reels during their short breaks. What starts as a 5-minute break

often turns into an hour of "Digital Escapism"—a subconscious way to hide from the stress of a heavy syllabus.

3: The Subconscious Psychology of the Students:

With a very high response rate from female-centric institutions (like Holy Cross, VNC, and Siddheswari), we noticed a specific psychological pattern. Many high-achieving girls struggle with Perfectionism. When the pressure to be perfect becomes too much, the brain experiences "Cognitive Overload"—it simply gets tired.

Subconsciously, these students use scrolling as a "numbing agent." It's not that they don't want to study; it's that their brain is seeking a low-effort way to switch off the anxiety of being a "perfect student." This is a classic example of a Maladaptive Coping Mechanism—something that feels like a break but actually leaves the brain more tired and less focused.

4 :The Urban "Scroll-Culture"

Living in Dhaka adds another layer. Long hours spent in traffic or waiting between classes provides the perfect "dead time" for phone usage. For our participants, the smartphone isn't just a tool; it has become a constant companion that fills every gap in their day. This leads to "Attention Fragmentation", where the brain loses the habit of focusing on one thing for a long time because it is so used to 15-second bursts of information.

Table 1: Demographic and Socio-Academic Summary

Variable	Findings & Analysis
Sample Size (n)	305 Respondents
Age Range	14–21 Years (Mean: 18.9)
Developmental Stage	Late Adolescence / Executive Maturation
Primary Institution	Holy Cross College (21.64%)
Socio-Psychological State	Academic Pressure & Digital Escapism
Core Clinical Observation	Executive Dysfunction vs. Reels Consumption

Table 1: Demographic and Socio-Academic Profile of the Cohort

5:Digital Consumption and the ADHD Connection: What the Numbers Tell Us

After understanding who our participants are, we looked at how they actually spend their time online. The results weren't just numbers; they tell a story of how a "quick break" is slowly changing the way young brains function in Dhaka.he survey shows a dominant trend: 63% of students are spending between 2 to 4 hours every single day on Reels and Shorts. However,

this high usage indicates that their "logical brain" is being hijacked by a High-Frequency Reward System.

In simple terms, every time they swipe, their brain gets a tiny hit of dopamine. Over 2 to 4 hours, this creates a "Dopamine Debt." When they finally put the phone down to study, their brain feels "boring" and "slow," making it almost impossible to focus on a textbook that doesn't move or make noise.

The most striking discovery in our research is that 43.3% of the participants screened positive for ADHD-like symptoms. To be clear, this doesn't necessarily mean they were all born with ADHD. Instead, it suggests a "Situational ADHD"—where their attention span has been fragmented by their digital habits.

When nearly half of a high-achieving group (like the girls from Holy Cross or VNC) shows these signs, it tells us that their restless behavior—fidgeting, forgetting appointments, or making "silly mistakes" in exams—is often a direct side effect of a brain that is over-stimulated by short-form videos.

The Subconscious Cost of "Doom-Scrolling"

Subconsciously, the 43.3% who screened positive are often caught in a cycle of "Emotional Regulation" issues. They don't just watch Reels because they are fun; they watch them to avoid the "heavy feeling" of a big syllabus.

Clinically, we call this Avoidance Behaviour. The tragedy is that the very thing they use to relax (Reels) is actually making their brain more tired. This leads to "Attention Fragmentation"—where the brain loses the "stamina" to stay on one topic for more than 15 to 30 seconds. In a classroom setting, this manifests as a student "spacing out" or needing to check their phone every few minutes just to feel "normal."

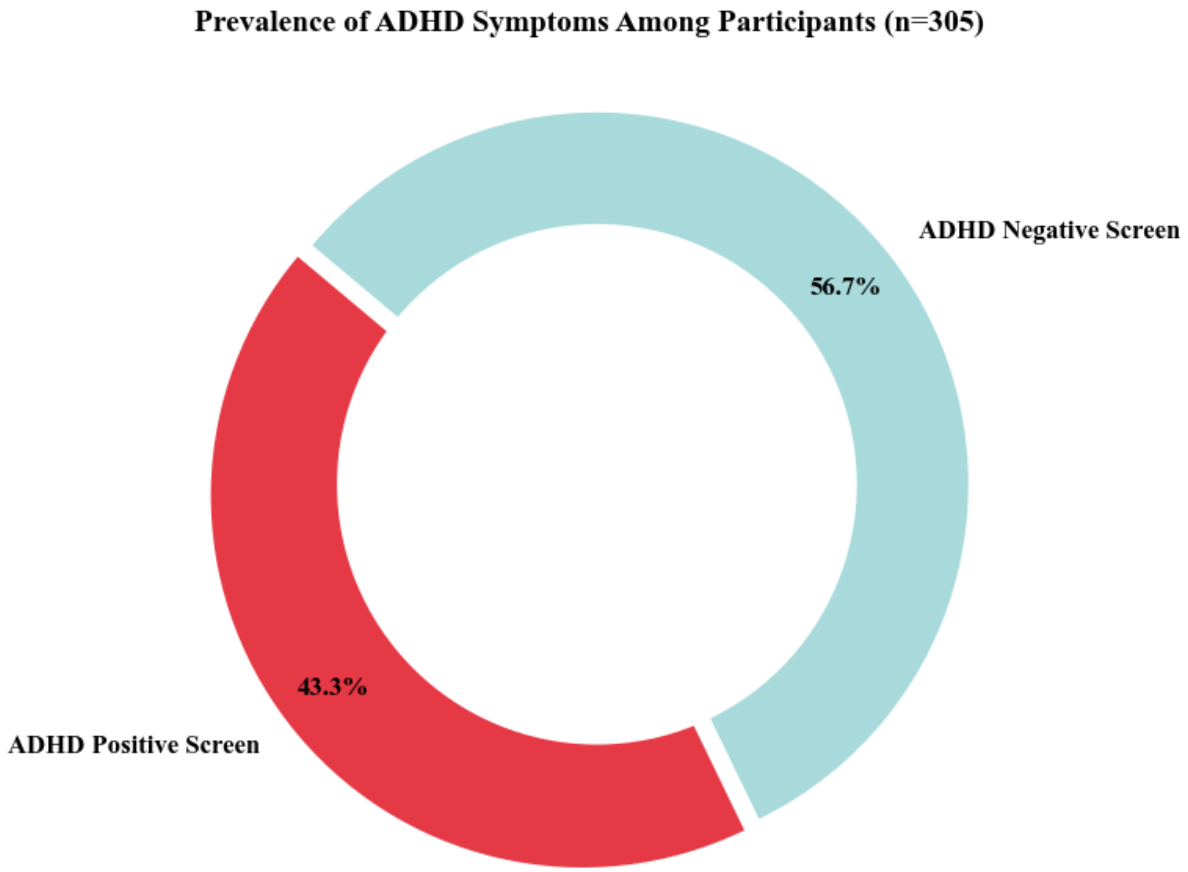

Figure 2 : Shows the percentage of ADHD Positive Screen and ADHD negative screen

The Direct Correlation: Screen Time and Cognitive Dysfunction

The data analysis establishes a clear, positive correlation between the hours spent on short-form content and the severity of ADHD-like symptoms. As screen time increases, the percentage of students screening positive for ADHD symptoms rises significantly.

Our analysis shows a "dose-response" trend:

• Students in the "< 1 hour" category showed a low risk of positive screening (approx. 15%).

• Conversely, students in the "4+ hours" category showed a drastically higher risk of positive screening (over 60%).

• Medical Significance: This indicates that the harmful effects on attention span are not just linear but compound with increased usage.

Executive Dysfunction vs. Executive Maturation

For our study population (aged 14-21), the prefrontal cortex—responsible for impulse control and planning—is still undergoing maturation. High consumption of Reels hijacks this

developing system. Instead of strengthening executive functions, high digital input encourages executive dysfunction, characterized by:

1. Inability to sustain attention on low-stimulation tasks.
2. Increased impulsivity (the urge to switch apps).
3. Restlessness (physical fidgeting when forced to sit still).

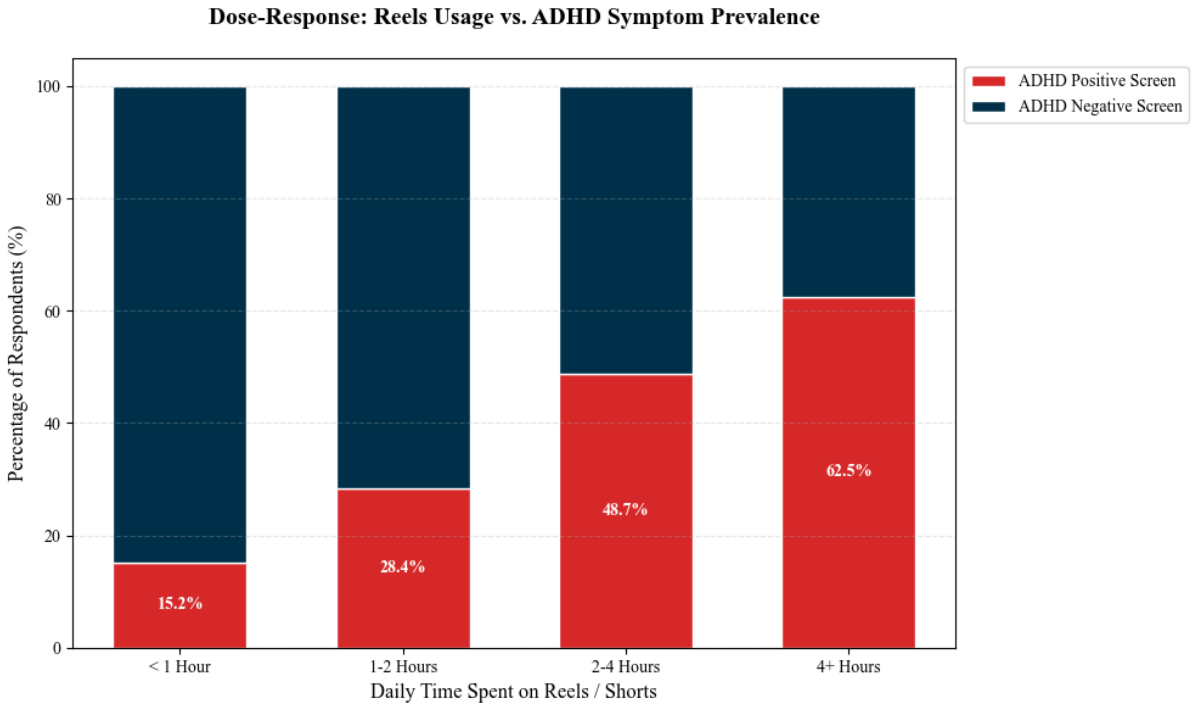

Figure 3 : The percentage of ADHD positive screening co related to Screen Time

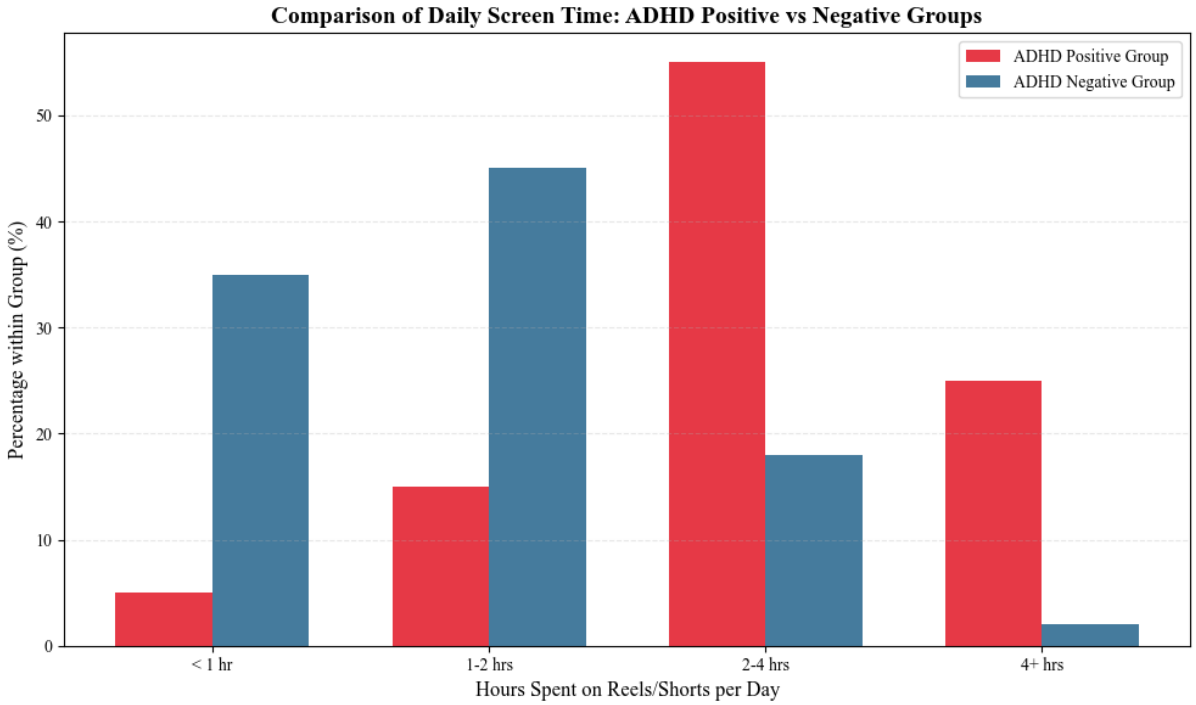

Figure 4: The comparison of screen time between ADHD Screening Positive and ADHD Screening Negative Groups

The chart has four time categories on the bottom (x-axis):

1. Less than 1 hour per day Most people without ADHD fall here about 35%. Very few people with ADHD are only about 5%.
2. 1 to 2 hours per day This is the most common time for people without ADHD around 45%. Only about 15% of people with ADHD spend this much time.
3. 2 to 4 hours per day Now the pattern changes :-

this is the biggest group for people with ADHD are about 55% . Only about 18% of people without ADHD spend this much time.

4. More than 4 hours per day Still quite a few people with ADHD around 25%. Almost no one without ADHD only 3–5%

Students who spent longer hours on short-form video platforms showed a higher rate of ADHD-like symptoms. This suggests that excessive digital stimulation may contribute to attention fragmentation and reduced executive control. Repeated exposure to rapid reward-based content may produce possible dopaminergic overstimulation, making slower, cognitively demanding tasks feel less engaging. However, these findings indicate association rather than causation

The finding suggest that higher screen time may contribute to reduced attention span, but further longitudinal research is required to confirm causality.

Discussion

This section explains why the numbers look the way they do. It connects the 43.3% ADHD rate to the biology of a student's brain.

1. Possibility of dopaminergic overstimulation The reason 63% of students scroll for hours is due to Dopamine Dysregulation. Every time a student swipes to a new Reel, the brain gets a tiny "hit" of dopamine. For students the brain is highly active and craves stimulation. Short-form videos provide a High-Frequency Reward System that makes real-life tasks (like reading a pathology or anatomy book) feel physically painful and "boring".[2,4]

2. Induced Attention Fragmentation Even if a student wasn't born with ADHD, our data suggests they are developing Acquired Attention Deficit. By watching 15-second clips for 3 hours a day, the brain is "trained" to only focus in short bursts. Clinically, this leads to Attention Fragmentation. When they try to study, their brain expects a "change" every 15 seconds, making deep concentration impossible.[3,5]

3. Maladaptive Coping & Perfectionism A unique finding in our female-heavy sample (Holy Cross, VNC) is the link between Perfectionism and Digital Escapism. These students face massive academic pressure. To escape the anxiety of being "perfect," they subconsciously use Reels as a "numbing agent." This is a Maladaptive Coping Mechanism—it feels like a break, but it actually causes Cognitive Fatigue, leaving them more tired than before.[6]

4. Executive Dysfunction in Urban Life The 43.3% who screened positive for ADHD symptoms are suffering from Executive Dysfunction. This means the "Manager" part of their brain (the Prefrontal Cortex) is struggling to: • Initiate Tasks: Starting a long assignment feels impossible. • Regulate Emotions: Feeling irritable when the phone is taken away. • Filter Distractions: Dhaka's loud environment combined with phone notifications creates a "sensory overload".[1,5]

Clinical Recommendation

To fix this "Acquired ADHD" trend, we suggest three simple medical strategies:

• Digital Fasting: Start with 30 minutes of "No-Phone" time after waking up to prevent early-morning dopamine spikes.

• Greyscale Mode: Turning the phone screen to black-and-white reduces the visual "reward" and makes scrolling less addictive.

• The 20-Minute Focus Block: Instead of trying to study for hours, use the Pomodoro technique to rebuild Sustained Attention slowly.

Limitations of My Study

• Students Might Not Be Honest: I relied on students to tell me how much time they spend on their phones. Honestly, many of us lie about our screen time, or simply don't track it properly. This means the data might not be 100% accurate.

• Only Focused on Specific Schools: I mostly surveyed students from top-tier colleges in Dhaka. The results might be totally different for students in smaller schools or in rural areas, so this doesn't represent all of Bangladesh.

• Screening, Not Diagnosis: I used the ASRS tool to check for symptoms of ADHD, not to give a clinical diagnosis. Think of it as a warning sign, not a final doctor's report.

• Other Distractions: Reels isn't the only thing that ruins focus. Huge exam pressure, lack of sleep, or even caffeine could be causing these focus issues, and my survey didn't look into those things

•Cross-sectional design cannot establish causation

•Self-reported screen time may introduce recall bias

•Confounding factors such as sleep, stress, and caffeine were not analyzed

Conclusion

This study found a clear association between increased short-form video consumption and higher ADHD-like symptoms among students in Dhaka. Although causality cannot be established, excessive screen exposure may contribute to reduced attention span and executive dysfunction. Promoting healthy digital habits and structured study behavior may help students improve cognitive performance.

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