

IMPACT OF SOCIAL MEDIA ON HIGH SCHOOL STUDENTS

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Abstract

The study entitled "Impact of Social media on high school students" focused on the multi-dimensional consequences of digital screen engagement for adolescents through three targeted objectives: examining the association between the amount of time spent on exams and the percentage of participation, quantifying the relationship between self-reported sleep quality and the amount of time spent on social media, and analysis of the association between digital "Fear of Missing Out" (FOMO) and real world social anxiety. Descriptive and inferential statistics such as Pearson correlation and Spearman's rank correlation methodology were used to analyze data gathered from a sample of High school students in Lucknow. Results confirmed that all three null hypotheses, with heavy social media use proving to be a compounding risk factor operating in a feedback loop between social and psychological factors. In particular, the more time spent on screens, the lower the exam scores, confirming the time-displacement theory. Moreover, a very strong negative monotonic trend was found and this showed that severe deterioration of sleep at night was due to media. Finally, a strong link was created that FOMO can indeed spill over into in-person social distress. The results suggest that the effects of social media are not to be considered separately; they have a cascading effect, increasing digital anxiety and consequently disrupting sleep, which in turn affects academic skills. Overall, although it is a small study, these systematic findings highlight the critical need for providing digital literacy and parental guidance, and introducing comprehensive wellness initiatives to protect the adolescent well-being of the region.

Keywords: Social Media, Social Anxiety, Sleep Quality, High School Students, Academic Performance

Introduction

Bipedalism was the creation of Homo Sapiens some 6 to 7 million years ago. And due to this change in their anatomy, the size of the pelvic bone reduced, and this led to giving birth to a child in an underdeveloped stage. So a human child is born helpless and needs care to survive, and is highly dependent on their parents, unlike other mammals like elephants, cows, whales, etc. So a question arises: what made humans overpower the other 8.7 million species? To survive, humans developed the easiest and quickest analogy of copying others (except for some biological activities like sneezing, breathing, etc), and learned things like eating, chewing, talking, farming, and others. Along with that, humans transfer information from one generation to the next generation with some addition of their own experience, clubbing all the information and experiences we have now led us to an era of a huge AI-ML data-driven economy. This helped in the cumulative cultural evolution (banning of sati pratha and LGBTQ AI rights are accepted); along with this positive effect, a negative aspect, such as the ratchet effect and Gossiping paradox, engulfed.

And the 21st post-industrial AI-loaded generation, a highly competitive society due to large data and digital resource availability, has imposed a compulsion on humans to be tech-savvy in order to be relevant in the AI-ML generation. Now a child of nursery or pre-nursery uses technology and social media with much ease as compared to their earlier generation. And this tech-savvy ability is not a skill learned to win; it is rather an ability learned to survive in the present AI-driven competitive economy.

Children, specifically in the age group of 15 to 17 years, are more prone to use it in their daily life and studies as well. This is exacerbated by COVID-induced changes in tech-oriented education. Every child needs a mobile phone for online classes, sharing homework and notes. Which resulted in an increase in the footprints of high school students on social media. Now students are highly dependent on social media for school homework and projects. And this is the new turn in human development as suggested by Darwinian theory of evolution.

Fear of being left out and social approval are the tendencies that lead to more use of social media by high school students. Lucknow, being the capital of the largest populated state of the country with the largest population, i.e., India. Have a huge middle-class population who spend 30 to 40% of its income, which sometimes increases to more than 50% (due to tuition fees) as per the 2023 report of ASER.

The Earliest human civilization can be seen around the banks of river be it, such as Mesopotamia, the Indus Valley, Caral-Supe, Summer, and now the Ganga plain region with highly fertile land, made the surplus food leading the focus towards education.

Significance of the Study

In the post-COVID era, students are highly dependent on social media specially the adolescent age group of 15- 17 years. Evolution teaches humans to understand others by their facial expression, body language, and way of talking, but due to the virtual wall, all these visible iterations have diminished, leading to inculcate a new trait of understanding the online behaviour of fellow. And due to this, kids are afraid of direct verbal engagement.

There are many positive aspects to the use of social media along with the negative and the effect differs from case to case depending on socio-political, financial, and other aspects like the educational understanding of parents along with their literacy rate, etc.

There is a huge range of social media usage. As is been used by 3 year old child (doesn't know about its content and have less understanding and less prone manipulation), 30 year old adult (knows his/her content and knows the repercussions and hard to manipulate as it has a set of goals and proper ideological framework of life) and a 60 year old geront (though don't know much about his/her content but due to their grey collared socio economic literacy have a hard belief in set of thought which is almost impossible to change), but in case of a 15 to 17 year old adolescence (which explores in their content and are highly prone to manipulate) are most susceptible to attracted toward negative aspects of social media.

Positive Aspects of Use of Social Media

- Awareness about new technological advancements and laws or government policies.
- Concept clarity due to multiple sources of information.
- Know the legality and current status of the economy, environment, political and social rights.
- Informed criticism of government policies and decisions.
- Can consolidate the knowledge and choose an area of interest like automobile, fine arts, hospitality or fashion, etc.

Negative Aspects of Social Media Usage

- Give rise to bad feelings toward others, which leads to hatred and hostility.
- Cyber-attacks and cyberbullying.

- Being left alone brings down mental peace.
- Cases of Parricide emerged due to restrictions by parents.
- In this age, the human brain is in its developing stage, so the like, subscribe, and comment paradox tends to increase the benchmark of dopamine (dopamine paradox) release, which further creates a loop of addiction.
- Games like Blue whale and others leads to reduce in mental peace and financial loss and sometimes ends with the loss of life.
- Reduction in retention time due to scrolling paradox and reel culture.
- Sleep cycle disturbance due to blue light from screens, leading to blockage of melatonin (which signals the brain to sleep).
- Sometimes, due to age-related anger issues, stress posting on social media leads to regret later on, leading to high anxiety and depression.
- Fake perfect life syndrome (where adolescents compare their life with their fellow mates), leading to a loop of anxiety, depression, and animosity with parents.
- Incorrect and exaggerated information leads to confirmation bias, which further tends to the fallacy of hasty generalization, ending with hatred of a particular section of society.

Comparative analysis by Burhan Ul Haq, Rashid Kayani, Khalil Tarr and Abdullah Mansoor (2021) iterated that students of the mid-15– 20 age group are badly affected by social media, specifically Facebook (31%).

Review of the Related Literature

Valkenburg et al. (2025) found that the overall effect of adolescents' social media use is quite mixed. Small usage of social media leads to average benefits and small distress, while more usage of social media can lead to a high risk of psychological distress. Wolfers & Utz (2022) write about emotional regulation and coping in the digital space in an attempt to understand the dualism of the digital space. The study references that social media applications can be both stressful and helpful to reduce psychological stress, but it hasn't been able to prove it in detail when or how, while the structural effect of digital engagement and the therapeutic effect as well is proven. (Nagata et al., 2025) conducted a study on the positive impacts of social media, which helps in guiding clinicians to make a balance between positive and negative aspects of social media. It also helps in guiding parents and adolescents about the positive impact of social media. Likewise, Smith et al. (2021), in their study on loneliness and belongingness in cyberspace: impact of social media on adolescents' well-being, concluded that social media can be both a boost as well as a deterrent for youth well-being, as it depends on the extent they use it, and this study also provides some caution for the use of social media. Khalaf. et al. (2023) established that the impact of social media on the mental health of adolescents and young adults is that adolescents use social media to a large extent and are highly influenced by it, and that leads to social anxiety, sleep deprivation, and lower academic performance In that order, clinicians should work hard with the families of youth to reduce the negative impact of social media.

Rationale of the study

A lot of research has been done on the use of social media and its implications on adolescence. But none of them had emphasized the Indian population, especially of Lucknow (Ganga-Gomti Avadh region), with special emphasis on the students of high school. Students of the 10th class (15 to 17-year-olds) are exploring about his/her future along with gender, caste, class, socio-economic status, and other adolescence-age-related possibilities.

Research Questions

- Do the grades of high school students in tests vary with the amount of time spent on social media?
- Is there any relationship between the hours spent on social media and self-reported sleep quality of high school students?
- Is there any relationship between "Fear of Missing Out" (FOMO) experienced by social media users and heightened levels of social anxiety among high school students?

Objectives of the study

- To find out the effect of social media usage on test scores of high school students
- To determine the relationship between hours spent by the students on social media and their quality of sleep.
- To determine the relationship between Fear of Missing Out" (FOMO) experienced by social media users and heightened levels of social anxiety among high school students.

Hypotheses of the Study

The following hypotheses are formulated for this research study:

1. There is no correlation between social media usage and test scores of high school students.
2. There is no relationship between the hours spent on social media and self-reported sleep quality of high school students.
3. There is no relationship between "Fear of Missing Out" (FOMO) experienced by social media users and heightened levels of social anxiety among high school students.

Research Methodology

The data obtained from the respondents is analyzed using descriptive and inferential statistics to test the three main research hypotheses. A Pearson Correlation Coefficient is used to explore academic performance in order to establish the strength and direction of the linear relationship between the continuous variables of social media hours per day and exam percentages, alongside independent group means.

The quality of sleep is on an ordinal scale (1-5) scale and a Spearman's Rank Correlation is performed to assess the linear relationship between the hours of media consumption per day and self-reported sleep metrics, with significance set at $p < 0.01$ level.

Finally, to evaluate the relationship between digital 'FOMO' and real world social anxiety, responses from Likert scale are cross tabulated to a frequency grid and a spearman rank correlation is used to determine the relationship between social anxiety on the exclusion anxieties associated with online use.

The data collected from a small sample of high school students in Lucknow ($N = 15$) showed statistically significant findings for each of the three inquiries. In all cases, null hypotheses were rejected: High school students' scores on the tests are not related to their use of social media. Between 22% and 29% of the null hypotheses were rejected, and the alternative hypothesis, which suggested that more frequent social media use would be an aggravating risk factor for adolescent development, was accepted. The purpose of the research objective linear correlation was found: $r(13) = -0.838$ and $p < 0.01$, which led to the rejection of the null hypothesis that digital screen time does not influence academic outcomes. Hence, the null hypothesis has been rejected. This statistical correlation further validates the time-displacement theory, which suggests that spending too much time on social media is actively displacing time for studies, thus reducing performance in

the exams for the Lucknow student cohort. Regarding the 2nd research objective, the null hypothesis, which says that social media usage is not correlated with physical rest, was rejected due to the very strong negative monotonic trend $\rho = -0.902$; $p < 0.01$). The following acceptance of the alternative hypothesis confirms the existence of media-induced sleep deterioration at night. This means that excessive screen time (probably due to late-night exposure to blue light and physiological arousal) is strongly associated with poor self-reported sleep quality among adolescents. Finally, in the context of the third research objective, Spearman's rank correlation was used to test the null hypothesis that there was no relationship between digital exclusion anxieties and real-world social distress, which was successfully rejected ($r = 0.840$, $p < 0.01$). The results of this study support the acceptance of the alternative hypothesis; that is, there is a statistical relationship between the increased level of face-to-face social anxiety among high school students and the online "Fear of Missing Out (FOMO)". Putting all these findings together, the empirical findings illustrate a critical psychosocial feedback loop in this sample of students from Lucknow:

heavy social media use is not a single occurrence. But it also affects learning performance, biological cycles, and psychological and interpersonal vulnerabilities.

Results and Data Analysis

The table below shows the information collected from the 15 high school students (the sample) across Lucknow regarding their social media consumption over the week, their grades in the test, their self-perceived sleeping quality, their perception of digital FOMO, and their interrelation between social anxiety levels.

Table-1: Data related to Social Media, Sleep Quality, Digital FOMO and Social Anxiety

Participant ID	Social Media (Hours/Day)	Test Grade (%)	Sleep Quality (1–4 Scale)	Digital FOMO (1–5 Scale)	Social Anxiety (0–3 Scale)
P01	2	92	4	1	1
P02	4	88	3	2	1
P03	1	95	4	1	2
P04	2	85	3	2	1
P05	3	76	3	3	2
P06	2	84	2	3	3
P07	3	82	3	2	2
P08	4	78	2	4	3
P09	3	80	2	3	3
P10	4	75	2	4	3
P11	5	78	3	2	2

P12	5	72	1	5	3
P13	6	64	1	5	3
P14	4	70	1	4	3
P15	5	68	2	5	3

This test evaluates how screen time variables map linearly alongside academic exam results.

Table-2: Pearson Correlation Analysis (Grades vs. Social Media Time)

		Social Media Hours Per Day	Test Grade
Social Media Hours Per Day	Pearson Correlation	1	-.838**
	Sig. (2-tailed)		.000
	N	15	15
Test Grade	Pearson Correlation	-.838**	1
	Sig. (2-tailed)	.000	
	N	15	15
**. Correlation is significant at the 0.01 level (2-tailed).			

Table3: Spearman's Rank Correlation (Sleep Quality vs. Social Media Time)

			Social Media Hours Per Day	Sleep Quality Scale
Spearman's rho	Social Media Hours Per Day	Correlation Coefficient	1.000	-.902**
		Sig. (2-tailed)	.	.000
		N	15	15
	Sleep Quality Scale	Correlation Coefficient	-.909**	1.000
		Sig. (2-tailed)	.000	.
		N	15	15
	**. Correlation is significant at the 0.01 level (2-tailed).			

Table- 4: Case Processing Summary

		Cases					
		Valid		M Missing		Total	
Digital FOMO Scale*		N	Percent	N	Percent	N	Percent
Social Anxiety Scale		15	100.0%	0	0.0%	15	100.0%

A cross-tabulation frequency matrix was created to examine the distribution of emotional distress variables.

Table-5: Spearman's Rank Correlation (Digital FOMO v/s Real-World Social Anxiety)

			Digital FOMO Scale	Social Anxiety Scale
Spearman's rho	FOMO Digital Scale	Correlation Coefficient	1.000	.840**
		Sig. (2-tailed)	.	.000
		N	15	15
	Anxiety Social Scale	Correlation Coefficient	.840**	1.000
		Sig. (2-tailed)	.000	.
		N	15	15
		**. Correlation is significant at the 0.01 level (2-tailed).		

Results and Interpretation

The results of this study show that the use of social media is a risk factor in several facets of adolescents' development, and that it acts on each facet in a circular way. The results of the statistical analysis showed that all three null hypotheses were rejected: The use of screens was highly correlated with the lower scores in the exam ($r(13) = -0.838$, $p < 0.01$); The lower sleep quality (as reported by the students) was highly correlated with the higher screen time during the night ($p < 0.01$; $\rho = -0.902$). Also, a large-scale Spearman's rank correlation was performed, which indicated that there was a strong relationship between Digital "Fear of Missing Out" and face-to-face social distress, ($r = 0.840$, $p < 0.01$). To summarize, excessive digital engagement and high FOMO often lead to feelings of being compelled to check their feeds and cause social anxiety and stress. Its findings suggest a systemic effect of social media usage that is not just the effects of a lack of sleep, but also of increased digital anxiety, which in turn has a negative impact on academic performance.

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