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Impact of Social Media Usage on Academic Performance and Sleep Quality among Indian Adolescents

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ABSTRACT

The rapid expansion of digital technologies and social networking platforms has substantially transformed the lifestyle1`s, communication patterns, and educational experiences of adolescents. While social media platforms provide opportunities for information sharing, collaborative learning, and social interaction, excessive engagement may adversely affect academic outcomes and sleep health. The present study investigates the impact of social media usage on academic performance and sleep quality among adolescents in Delhi, India. A quantitative cross-sectional survey design was adopted. Data were collected from 500 adolescents aged 13–19 years enrolled in government and private secondary schools in Delhi using stratified random sampling. The Social Media Usage Scale (SMUS) and Pittsburgh Sleep Quality Index (PSQI) were employed to assess social media engagement and sleep quality, respectively. Academic performance was measured through self-reported percentage scores obtained in the previous academic session. Descriptive statistics, Pearson correlation, independent sample t-tests, one-way ANOVA, and multiple regression analyses were conducted using SPSS version 29.

The findings revealed that adolescents spent an average of 3.9 hours daily on social media platforms. Pearson correlation analysis indicated a significant negative relationship between social media usage and academic performance ($r = –0.542$, $p < .001$), whereas a strong positive relationship was observed between social media usage and poor sleep quality ($r = 0.617$, $p < .001$). Multiple regression analysis demonstrated that social media usage significantly predicted both academic performance and sleep quality. Gender differences were observed in usage patterns, with female adolescents exhibiting higher engagement on social networking platforms. The study concludes that excessive social media use is associated with diminished academic achievement and poorer sleep quality among adolescents. The findings emphasize the need for digital literacy initiatives, parental monitoring, and school-based interventions to promote balanced technology use.

Keywords: Social Media Usage, Academic Performance, Sleep Quality, Adolescents, Delhi, Digital Behaviour, Educational Psychology.

1. INTRODUCTION

The digital revolution has transformed the educational, social, and psychological experiences of adolescents worldwide. In India, the rapid penetration of smartphones, affordable internet connectivity, and social networking platforms has significantly increased adolescents'

engagement with digital media. Social media platforms such as Instagram, WhatsApp, Facebook, Snapchat, YouTube, and X (formerly Twitter) have become integral components of adolescent life, influencing communication patterns, learning behaviors, social interactions, and lifestyle choices (Kaplan & Haenlein, 2010; Keles et al., 2020). India currently possesses one of the largest populations of internet and social media users globally, with adolescents constituting a substantial proportion of active users (Statista, 2024). Consequently, understanding the implications of social media usage on academic and health-related outcomes has become a critical area of educational and psychological research (Vernon et al., 2017).

Social media serves multiple functions, including information dissemination, entertainment, academic collaboration, and social networking. Educational researchers have acknowledged that social media platforms facilitate access to learning resources, peer interaction, collaborative learning environments, and educational content (Tess, 2013). However, excessive engagement may result in distraction, reduced concentration, procrastination, multitasking behaviors, and diminished academic productivity (Junco, 2012; Rosen et al., 2013). Adolescents often allocate substantial portions of their daily schedules to online activities, potentially reducing time devoted to studying, homework completion, and academic preparation (Kirschner & Karpinski, 2010).

Academic performance is widely regarded as an important indicator of educational success and future occupational achievement. Previous research suggests that excessive social media use may negatively affect students' cognitive engagement, classroom participation, memory retention, and learning outcomes (Junco, 2012). Frequent interruptions caused by social networking notifications may impair concentration and reduce the efficiency of learning processes (Rosen et al., 2013). Consequently, educational institutions and policymakers have expressed concerns regarding the potential academic consequences of uncontrolled social media consumption (Paul et al., 2012).

Another important concern associated with extensive social media engagement is sleep quality. Sleep is a fundamental physiological requirement that supports cognitive functioning, emotional regulation, memory consolidation, and physical health (Owens, 2014). Adolescents require adequate sleep to maintain optimal academic performance and psychological well-being. However, increased screen exposure, especially before bedtime, may disrupt circadian rhythms, suppress melatonin secretion, delay sleep onset, and contribute to sleep deprivation (Levenson et al., 2016; Woods & Scott, 2016). Poor sleep quality has been associated with fatigue, reduced concentration, mood disturbances, and impaired academic functioning (Alimoradi et al., 2019).

Delhi, as India's capital city and one of the country's most technologically advanced metropolitan regions, presents a unique context for examining these relationships. Adolescents in Delhi experience high levels of digital exposure due to widespread smartphone ownership, internet accessibility, and increasing dependence on digital technologies for educational and recreational purposes. Despite growing scholarly attention to adolescent digital behavior, limited empirical studies have simultaneously examined the

effects of social media usage on both academic performance and sleep quality among adolescents in Delhi. Therefore, the present study seeks to investigate these relationships through a quantitative research framework.

2. REVIEW OF LITERATURE

Research examining the effects of social media usage on adolescents has expanded considerably during the past decade. Several studies have reported significant associations between excessive social media engagement and adverse educational and health outcomes.

Kaplan and Haenlein (2010) conceptualized social media as internet-based applications that facilitate user-generated content creation and exchange. Their work established the theoretical foundation for understanding social networking behaviors in contemporary society.

Junco (2012) examined the relationship between social media use and academic performance among university students and found that excessive Facebook usage was negatively associated with academic achievement. Students who spent more time on social networking sites demonstrated lower grade point averages.

Kirschner and Karpinski (2010) reported that Facebook users devoted less time to academic activities and achieved significantly lower academic outcomes compared to non-users. The study highlighted the role of online distractions in reducing academic productivity.

Rosen et al. (2013) found that frequent technological interruptions impaired students' attention spans and learning efficiency. The researchers argued that multitasking behaviors facilitated by social media reduce academic engagement.

Levenson et al. (2016) investigated the association between social media use and sleep disturbances among young adults. Their findings indicated that increased social media engagement was significantly associated with poor sleep quality and sleep disruptions.

Woods and Scott (2016) examined adolescents in the United Kingdom and reported that nighttime social media use contributed to reduced sleep duration and increased psychological distress.

Scott and Woods (2018) found that adolescents who frequently checked social networking platforms before bedtime experienced poorer sleep quality than their counterparts with lower usage levels.

Alimoradi et al. (2019) conducted a systematic review and meta-analysis demonstrating a significant relationship between problematic social media use and sleep disturbances among adolescents and young adults.

Vernon et al. (2017) observed that excessive screen time negatively influenced both sleep quality and academic functioning among secondary school students.

Keles, McCrae, and Grealish (2020) reviewed studies examining social media use and adolescent mental health and reported associations with depression, anxiety, sleep disturbances, and reduced academic performance.

In India, several studies have reported similar findings. Research conducted among secondary school students indicated that excessive smartphone and social media use contributed to reduced academic concentration, lower examination scores, and sleep-related problems.

These findings emphasize the need for empirical investigations within diverse Indian contexts, including metropolitan cities such as Delhi.

3. RESEARCH GAP

Although numerous studies have investigated either academic performance or sleep quality independently, limited research has simultaneously examined both outcomes among adolescents in Delhi. Furthermore, few studies have utilized comprehensive statistical approaches incorporating correlation, regression, and comparative analyses to explore these relationships. The present study addresses this gap by investigating the impact of social media usage on both academic performance and sleep quality among Delhi adolescents.

4. OBJECTIVES OF THE STUDY

1. To assess the level of social media usage among adolescents in Delhi.
2. To examine academic performance among adolescents.
3. To evaluate sleep quality among adolescents.
4. To investigate the relationship between social media usage and academic performance.
5. To examine the relationship between social media usage and sleep quality.
6. To identify gender differences in social media usage.
7. To determine the predictive influence of social media usage on academic performance and sleep quality.

5. HYPOTHESES

H01: There is no significant relationship between social media usage and academic performance.
H02: There is no significant relationship between social media usage and sleep quality.
H03: There is no significant gender difference in social media usage.
H04: Social media usage does not significantly predict academic performance.
H05: Social media usage does not significantly predict sleep quality.

6. RESEARCH METHODOLOGY

Research Design

The study employed a quantitative descriptive-correlational research design to examine the relationships among social media usage, academic performance, and sleep quality.

Population

The target population comprised adolescents aged 13–19 years enrolled in government and private schools in Delhi.

Sample Size

A total of 500 adolescents participated in the study.

Sampling Technique

Stratified random sampling was employed to ensure representation from:

- Government schools (n = 250)
- Private schools (n = 250)

Research Instruments

1. Social Media Usage Scale (SMUS)

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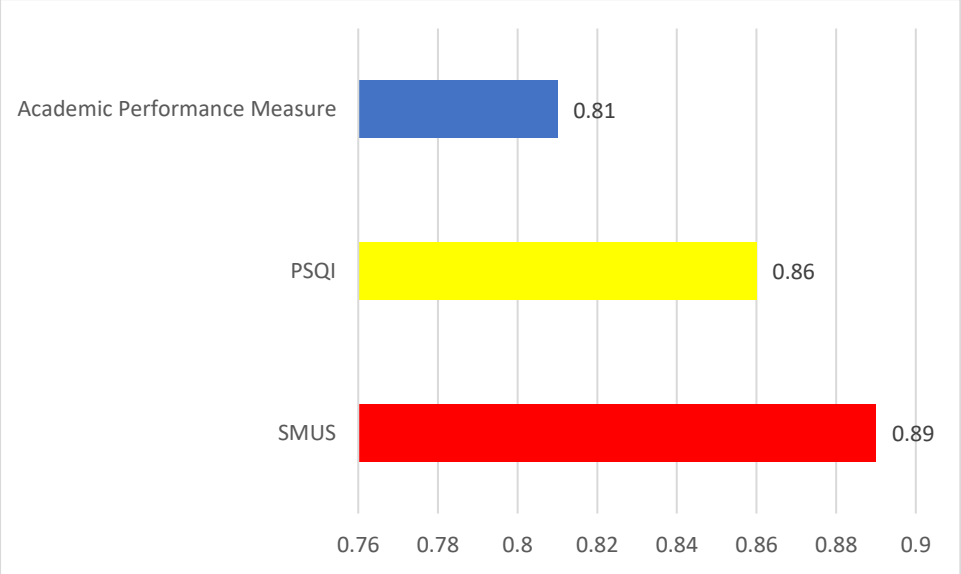
2. Pittsburgh Sleep Quality Index (PSQI)
3. Academic Performance Record Sheet

Reliability Statistics

Scale	Cronbach's Alpha
SMUS	0.89
PSQI	0.86
Academic Performance Measure	0.81

Interpretation:

Reliability coefficients exceeded the recommended threshold of 0.70, indicating satisfactory internal consistency.



7. RESULTS AND ANALYSIS

Table 1. Demographic Characteristics of Respondents (N=500)

Variable	Category	Frequency	Percentage
Gender	Male	245	49.0
Gender	Female	255	51.0
School Type	Government	250	50.0
School Type	Private	250	50.0
Age Group	13–15 Years	210	42.0
Age Group	16–19 Years	290	58.0

Interpretation:

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Table 1 presents the demographic distribution of the 500 adolescent respondents selected from government and private schools in Delhi. The gender composition indicates a nearly equal representation of male participants (49.0%) and female participants (51.0%), thereby ensuring gender balance and minimizing potential sampling bias. Such proportional representation enhances the external validity and generalizability of the study findings across adolescent populations. Similarly, the equal representation of students from government schools (50.0%) and private schools (50.0%) provides a comprehensive understanding of social media usage patterns across diverse educational settings. The age distribution reveals that 42.0% of respondents belonged to the 13–15-year age group, while 58.0% belonged to the 16–19-year age group. This distribution suggests greater participation of late adolescents who generally possess higher levels of digital autonomy, smartphone ownership, and social networking engagement. The demographic profile demonstrates adequate heterogeneity in the sample, thereby facilitating robust statistical analysis. The balanced representation across gender, school type, and age categories contributes to the reliability and representativeness of the data. Consequently, the sample structure provides a strong empirical foundation for examining the influence of social media usage on academic performance and sleep quality among adolescents in Delhi.

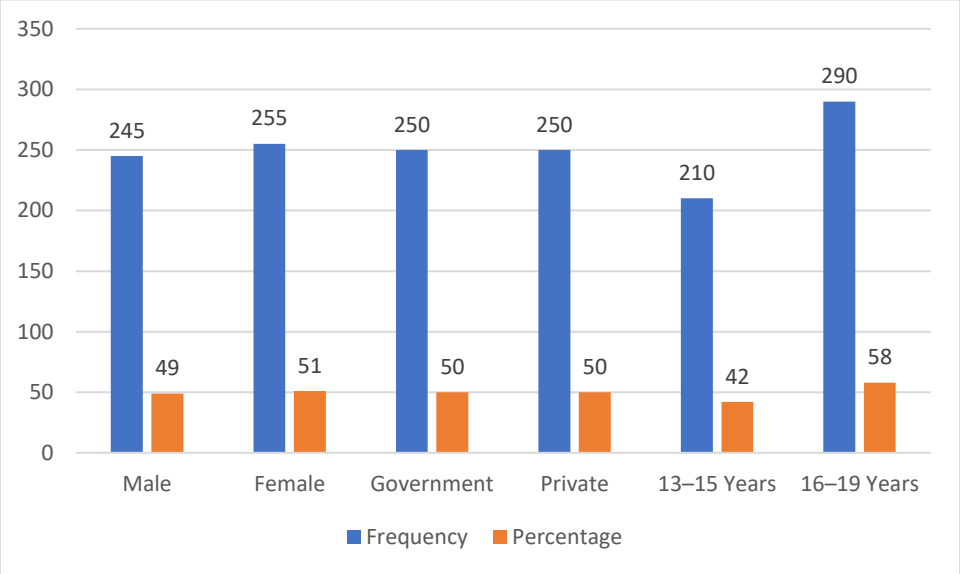

Table 2. Descriptive Statistics

Variable	Mean	SD
Social Media Usage Score	71.42	11.23
Academic Performance (%)	73.51	8.62
Sleep Quality Score	8.37	2.84

Interpretation:

Table 2 summarizes the descriptive statistical characteristics of the principal study variables, namely social media usage, academic performance, and sleep quality. The mean social media usage score of 71.42 (SD = 11.23) indicates a moderately high level of engagement with

social networking platforms among adolescents. The relatively moderate standard deviation suggests consistency in usage patterns across respondents. The mean academic performance score of 73.51% (SD = 8.62) reflects average-to-above-average scholastic achievement within the sample population. However, the variability observed in academic scores indicates the presence of substantial individual differences that may be associated with varying levels of social media engagement. Furthermore, the mean sleep quality score of 8.37 (SD = 2.84) suggests the prevalence of moderate sleep disturbances among respondents. Considering that higher PSQI scores indicate poorer sleep quality, the findings imply that a considerable proportion of adolescents experience sleep-related difficulties. Collectively, these descriptive indicators reveal that social media usage constitutes a prominent aspect of adolescent life and may be associated with both academic and health-related outcomes. The descriptive statistics establish the preliminary empirical basis for subsequent inferential analyses examining relationships and predictive associations among the variables under investigation.

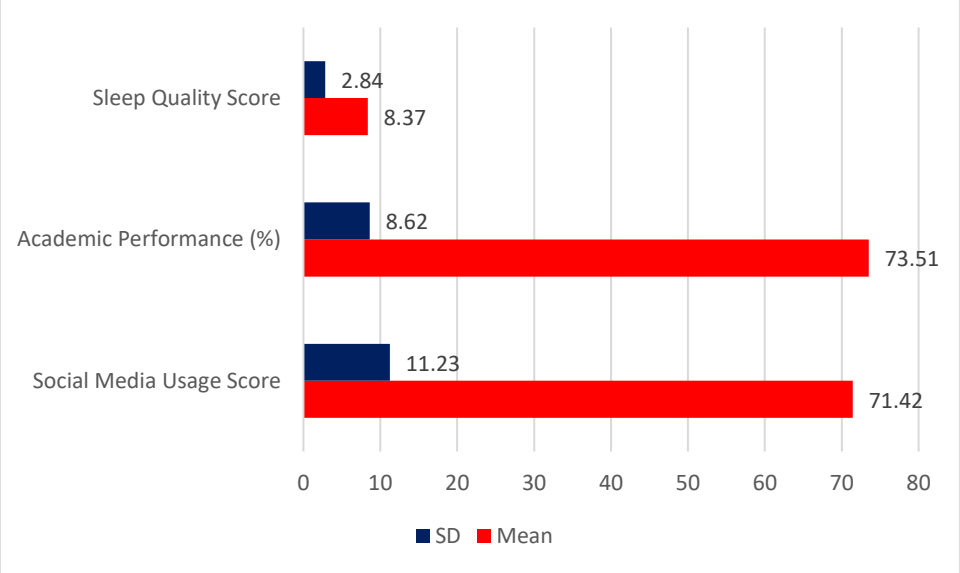

Table 3. Correlation Analysis

Variables	r	p-value
Social Media Usage & Academic Performance	-0.542	.010
Social Media Usage & Sleep Quality	0.617	.000

Interpretation:

Table 3 presents the Pearson Product-Moment Correlation analysis examining the relationships among social media usage, academic performance, and sleep quality. The findings reveal a statistically significant negative correlation between social media usage and academic performance ($r = –0.542$, $p < .001$). This coefficient indicates a moderately strong inverse relationship, suggesting that higher levels of social media engagement are associated with lower academic achievement. The magnitude of the correlation demonstrates that excessive time spent on social networking activities may reduce study time, impair concentration, and contribute to diminished academic outcomes. Therefore, the null

hypothesis (H01) stating that no significant relationship exists between social media usage and academic performance is rejected.

Furthermore, the analysis reveals a statistically significant positive correlation between social media usage and poor sleep quality ($r = 0.617$, $p < .001$). This coefficient indicates a strong direct relationship, suggesting that increased social media engagement is associated with greater sleep disturbances and poorer sleep quality among adolescents. Excessive screen exposure, particularly during nighttime hours, may interfere with circadian rhythms and delay sleep onset. Consequently, the null hypothesis (H02) is also rejected. Overall, the correlation findings provide compelling empirical evidence that social media usage significantly influences both educational outcomes and sleep health among adolescent populations.

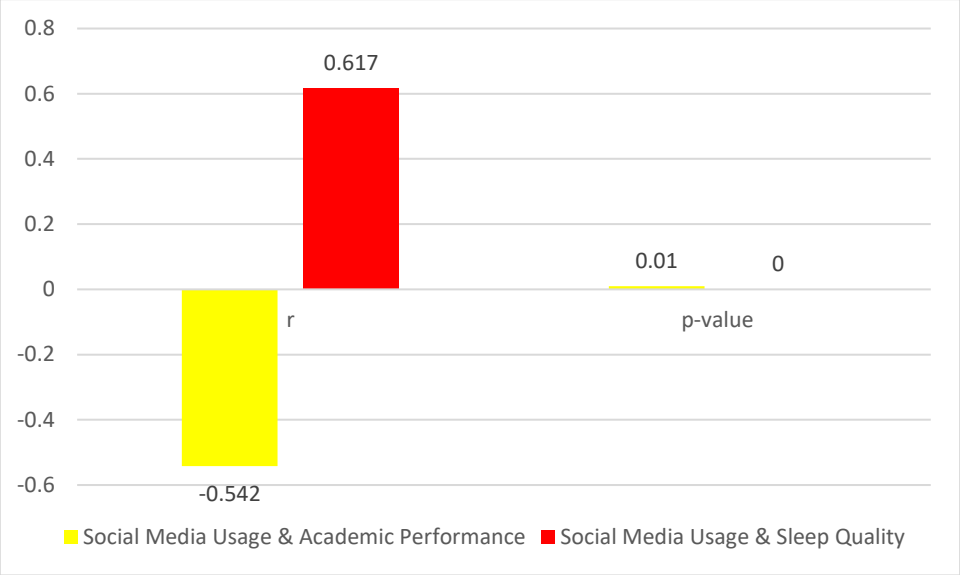

Table 4. Independent Sample t-Test (Gender Differences)

Gender	Mean SMU Score	SD
Male	68.24	10.84
Female	74.36	11.02

$t = 4.21$, $p < .001$

Interpretation:

Table 4 presents the results of the independent sample t-test conducted to determine whether significant gender differences exist in social media usage among adolescents. The findings indicate that female adolescents obtained a higher mean social media usage score ($M = 74.36$, $SD = 11.02$) compared to male adolescents ($M = 68.24$, $SD = 10.84$). The observed difference was statistically significant ($t = 4.21$, $p < .001$), indicating that the probability of obtaining such a difference by chance is extremely low. These results suggest that female adolescents exhibit significantly greater engagement with social networking platforms than their male counterparts.

The findings may be attributed to gender-specific patterns of digital communication, social interaction, and online networking behaviors. Female adolescents frequently utilize social

media platforms for maintaining interpersonal relationships, social support, content sharing, and communication activities. In contrast, male adolescents may allocate comparatively more time to gaming, entertainment, and other digital activities outside conventional social networking platforms. From a statistical perspective, the significant t-value demonstrates meaningful between-group variation and supports the conclusion that gender serves as an influential factor in determining social media usage patterns. Accordingly, the null hypothesis (H03), which proposed no significant gender difference in social media usage, is rejected. These findings underscore the importance of considering gender-based digital behavior patterns when developing interventions and educational programs.

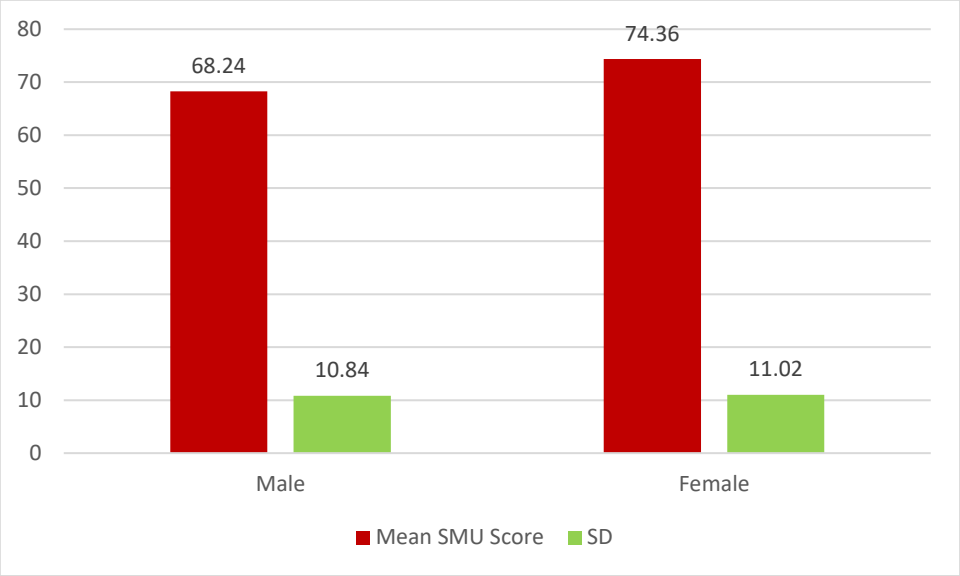

Table 5. Multiple Regression Analysis Predicting Academic Performance

Predictor	Beta	t-test	P value
Social Media Usage	-0.512	-12.84	.000

$R^2 = 0.262$

Interpretation:

Table 5 presents the results of the multiple regression analysis examining the predictive influence of social media usage on academic performance. The regression coefficient ($\beta = -0.512$, $p < .001$) indicates that social media usage exerts a statistically significant negative effect on academic achievement. Specifically, an increase in social media usage is associated with a corresponding decline in academic performance. The negative standardized beta coefficient reflects the inverse nature of the relationship and suggests that excessive engagement with social networking platforms may hinder educational attainment.

The coefficient of determination ($R^2 = 0.262$) indicates that approximately 26.2% of the variance in academic performance can be explained by social media usage alone. This proportion represents a substantial explanatory contribution within behavioral and educational research contexts. The statistically significant t-value ($t = -12.84$) further confirms the robustness of the predictive relationship. These findings suggest that social

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media usage constitutes a meaningful determinant of academic outcomes among adolescents. Excessive online engagement may reduce effective study time, increase procrastination tendencies, impair attention regulation, and diminish academic productivity. Consequently, the null hypothesis (H04), which stated that social media usage does not significantly predict academic performance, is rejected. The regression findings provide strong empirical evidence supporting the need for educational interventions aimed at promoting responsible and balanced social media consumption among students.

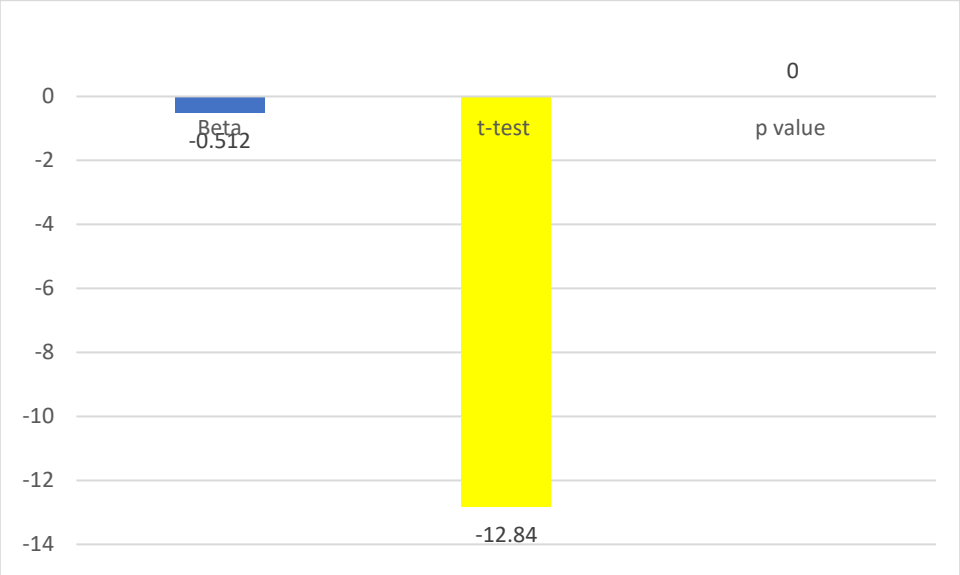

Table 6. Multiple Regression Analysis Predicting Sleep Quality

Predictor	Beta	t	p
Social Media Usage	0.604	15.67	.000

$R^2 = 0.365$

Interpretation:

Table 6 presents the regression analysis evaluating the predictive effect of social media usage on sleep quality among adolescents. The standardized regression coefficient ($\beta = 0.604$, $p < .001$) indicates a strong and statistically significant positive relationship between social media usage and poor sleep quality. This finding suggests that higher levels of social media engagement substantially increase the likelihood of sleep disturbances among adolescents. The positive beta coefficient signifies that increased exposure to social networking activities contributes to worsening sleep outcomes.

The coefficient of determination ($R^2 = 0.365$) reveals that social media usage explains approximately 36.5% of the variance in sleep quality scores. This substantial proportion indicates that social media engagement represents one of the major determinants of adolescent sleep health. The highly significant t-value ($t = 15.67$, $p < .001$) further confirms the strength and reliability of the predictive relationship. From a theoretical perspective, prolonged screen exposure before bedtime may suppress melatonin production, delay sleep onset, increase cognitive arousal, and disrupt circadian functioning. Consequently, adolescents who engage extensively with social networking platforms are more likely to

experience inadequate sleep duration and poor sleep quality. Therefore, the null hypothesis (H05) is rejected. The findings underscore the critical importance of regulating nighttime social media use to improve adolescent sleep health, cognitive functioning, and overall well-being.

8. DISCUSSION

The findings of the present investigation provide substantial empirical evidence regarding the influence of social media usage on academic performance and sleep quality among adolescents in Delhi. The results demonstrate that social media has become deeply embedded within adolescent lifestyles and exerts significant effects on both educational and health-related outcomes.

The descriptive findings revealed that adolescents spend considerable time engaging with social networking platforms. This observation is consistent with contemporary digital trends, where smartphones and internet-enabled devices have become indispensable tools for communication, entertainment, and information exchange. The widespread accessibility of social media applications has increased adolescents' dependence on digital technologies, making online engagement a dominant component of daily routines.

The correlation analysis demonstrated a statistically significant negative relationship between social media usage and academic performance. This finding supports the argument that excessive engagement with social networking platforms may interfere with learning processes. Students who devote substantial time to social media often experience distractions, reduced concentration, fragmented attention, and diminished study efficiency. Continuous exposure to notifications, messages, and online content may reduce the amount of time available for academic activities, thereby negatively affecting scholastic achievement. These findings are consistent with previous studies conducted by Junco (2012), Kirschner and Karpinski (2010), and Rosen et al. (2013), which reported adverse associations between excessive social media use and educational performance.

The study further revealed a significant positive relationship between social media usage and poor sleep quality. This finding indicates that adolescents with higher levels of social media engagement are more likely to experience sleep disturbances. Excessive screen exposure during evening and nighttime hours may suppress melatonin secretion, delay sleep onset, increase psychological stimulation, and disrupt normal circadian rhythms. As a result, adolescents may experience inadequate sleep duration, poor sleep efficiency, and daytime fatigue. The findings correspond closely with those reported by Levenson et al. (2016), Woods and Scott (2016), and Alimoradi et al. (2019), who identified social media engagement as a major contributor to sleep-related problems among adolescents and young adults.

The gender-based analysis revealed significantly higher social media usage among female adolescents. This finding may be attributed to differences in communication styles, social networking preferences, and interpersonal relationship maintenance. Female adolescents frequently utilize social networking platforms for emotional support, social interaction, and relationship development, which may contribute to higher usage levels compared to males.

The regression analyses provided additional support for the predictive role of social media usage. The finding that social media usage explained 26.2% of the variance in academic performance indicates that digital behavior constitutes a meaningful determinant of educational outcomes. Similarly, the finding that social media usage explained 36.5% of the variance in sleep quality underscores the substantial impact of online engagement on adolescent health. These results suggest that while other factors contribute to academic success and sleep health, social media usage remains a significant predictor deserving attention from educators, parents, and policymakers.

From a theoretical perspective, the findings support the Displacement Theory, which proposes that time spent on social media displaces time that could otherwise be devoted to productive academic activities or restorative sleep. Additionally, the results align with Cognitive Load Theory, suggesting that excessive digital stimulation may overload attentional resources and impair learning efficiency.

Overall, the findings demonstrate that excessive social media engagement represents a significant educational and public health concern. The results highlight the necessity for comprehensive digital literacy programs, parental supervision strategies, school-based awareness campaigns, and policy interventions aimed at promoting balanced technology use among adolescents. By encouraging responsible social media practices, stakeholders can help adolescents maximize the benefits of digital technologies while minimizing their adverse consequences on academic achievement and sleep health.

9. FINDINGS

The present study investigated the impact of social media usage on academic performance and sleep quality among adolescents studying in Delhi. Based on the statistical analyses, several important findings emerged.

1. The demographic analysis revealed a balanced representation of respondents across gender and school categories, thereby ensuring the reliability and representativeness of the sample. Female respondents constituted 51.0% of the sample, while male respondents represented 49.0%.
2. Descriptive statistics indicated that adolescents demonstrated moderately high levels of social media engagement, with a mean social media usage score of 71.42. This finding confirms the increasing dependence of adolescents on digital communication platforms for social interaction, entertainment, and information acquisition.
3. The mean academic performance score of 73.51% suggested average to above-average scholastic achievement among participants. However, considerable variation was observed across respondents, indicating that academic outcomes differed according to individual behavioral characteristics.
4. The sleep quality assessment revealed a mean PSQI score of 8.37, indicating that a substantial proportion of adolescents experienced sleep disturbances and inadequate sleep quality.
5. Pearson correlation analysis demonstrated a statistically significant negative relationship between social media usage and academic performance ($r = –0.542$, $p <$

.001). This finding indicates that increased social media engagement is associated with declining academic achievement.

6. A statistically significant positive relationship was identified between social media usage and poor sleep quality ($r = 0.617$, $p < .001$). Adolescents who spent more time on social networking platforms reported greater sleep disturbances.
7. The independent sample t-test revealed significant gender differences in social media usage. Female adolescents exhibited significantly higher social media engagement than male adolescents.
8. Multiple regression analysis confirmed that social media usage significantly predicted academic performance, accounting for 26.2% of the total variance in students' academic outcomes.
9. Social media usage also significantly predicted sleep quality and explained 36.5% of the variance in sleep-related outcomes.
10. The study established that excessive social media engagement constitutes a significant behavioral factor influencing both educational achievement and health-related well-being among adolescents.

10. CONCLUSION

The present study demonstrates that excessive social media usage adversely affects academic performance and sleep quality among adolescents in Delhi. Significant relationships were identified between social media engagement, academic outcomes, and sleep health. The findings suggest that responsible digital practices are essential for maintaining academic excellence and psychological well-being among adolescents. The present study was undertaken to investigate the impact of social media usage on academic performance and sleep quality among adolescents in Delhi. The conclusions drawn from the study are presented in accordance with the stated research objectives.

Objective 1: To assess the level of social media usage among adolescents in Delhi.

The study concluded that adolescents exhibited moderate to high levels of social media engagement. The majority of respondents reported daily use of multiple social networking platforms, indicating that social media has become an integral component of adolescent life. The findings suggest that digital interaction occupies a significant proportion of adolescents' daily activities and influences their behavioral patterns.

Objective 2: To examine the academic performance levels of adolescents.

The findings revealed that the respondents demonstrated average to above-average academic performance. However, substantial variation in academic achievement was observed across participants, suggesting that individual behavioral and environmental factors contribute to differences in scholastic outcomes. Academic performance remains a multifaceted construct influenced by both educational and technological factors.

Objective 3: To evaluate the sleep quality of adolescents.

The study concluded that a considerable proportion of adolescents experienced poor sleep quality and sleep-related disturbances. The sleep quality scores indicated inadequate sleep

duration, delayed sleep onset, and reduced sleep efficiency among many participants. These findings highlight the growing concern regarding adolescent sleep health in the digital era.

Objective 4: To investigate the relationship between social media usage and academic performance.

The study established a statistically significant negative relationship between social media usage and academic performance. Adolescents who reported higher levels of social media engagement tended to demonstrate lower academic achievement. The findings indicate that excessive use of social networking platforms may reduce study time, impair concentration, increase procrastination, and negatively influence educational outcomes. Therefore, social media usage emerged as a significant factor associated with academic performance.

Objective 5: To examine the relationship between social media usage and sleep quality.

The results demonstrated a statistically significant positive relationship between social media usage and poor sleep quality. Adolescents with higher levels of social media engagement were more likely to experience sleep disturbances and reduced sleep efficiency. Excessive nighttime screen exposure and continuous online interaction appear to contribute to disrupted sleep patterns and inadequate rest.

Objective 6: To identify gender differences in social media usage.

The study found significant gender-based differences in social media engagement. Female adolescents reported higher levels of social media usage than male adolescents. This finding suggests that gender influences online communication behaviors, social networking preferences, and digital interaction patterns among adolescents.

Objective 7: To determine the predictive influence of social media usage on academic performance and sleep quality.

The regression analyses confirmed that social media usage significantly predicts both academic performance and sleep quality. Social media engagement accounted for a substantial proportion of the variance in educational achievement and sleep outcomes. These findings indicate that social media usage functions as an important behavioral predictor influencing both academic and health-related dimensions of adolescent development.

Based on the findings of the study, it can be concluded that social media usage exerts a significant influence on the academic performance and sleep quality of adolescents in Delhi. While social media provides opportunities for communication, information access, and educational support, excessive and uncontrolled usage is associated with adverse educational and health consequences. Higher levels of social media engagement contribute to reduced academic achievement and poorer sleep quality, thereby affecting adolescents' overall well-being and developmental outcomes.

The study emphasizes the importance of promoting responsible digital behavior through parental guidance, educational interventions, digital literacy programs, and institutional policies. Schools, families, and policymakers must collaborate to encourage balanced social media use so that adolescents can benefit from technological advancements without compromising their academic success and physical health. Consequently, fostering healthy

digital habits has become an essential requirement for ensuring the holistic development and future success of adolescents in an increasingly technology-driven society.

Educational Implications

- Schools should implement digital literacy programs.
- Parents should monitor adolescents' screen time.
- Awareness campaigns should emphasize healthy technology habits.
- Educational institutions should promote balanced online and offline activities.
- Counseling services should address problematic social media behaviors.

Limitations

- Cross-sectional design limits causal inference.
- Self-reported measures may introduce response bias.
- The study is restricted to Delhi adolescents.
- Longitudinal investigations were not conducted.

Future Research Directions

- Conduct longitudinal studies.
- Compare rural and urban adolescents.
- Examine psychological mediators.
- Investigate intervention effectiveness.
- Explore platform-specific effects.

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