

The Effect of Prolonged Social Media Use on Sleep Quality of Class 2024C Students

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DOI : -



Sections Info

Article history:

Submitted: September 10, 2025
Final Revised: September 25, 2025
Accepted: October 02, 2025
Published: October 24, 2025

Keywords:

Social media
Sleep quality
Students
Duration of use
PSQI

ABSTRACT

Objective: This study aims to examine the relationship between the duration of social media usage and the sleep quality of students in class 2024C. Social media plays a significant role in students' daily routines as a source of communication, entertainment, and information; however, prolonged use – particularly at night – may adversely affect sleep patterns. **Method:** A quantitative correlational approach was employed using data collected through an online questionnaire that included measures of social media usage duration and sleep quality based on the Pittsburgh Sleep Quality Index (PSQI). A purposive sample of 41 students participated, and the data were analyzed using Pearson correlation and simple linear regression with SPSS version 25. **Results:** The findings indicate a significant negative correlation between social media usage duration and sleep quality, suggesting that students who spend more time on social media tend to experience poorer sleep quality. **Novelty:** This study provides empirical evidence on the detrimental impact of excessive social media engagement on students' sleep health, highlighting the urgent need for digital well-being interventions among university students.

INTRODUCTION

The development of information technology has ushered in major changes in the academic and social lives of students. Social media, including Instagram, TikTok, WhatsApp, and Twitter, are now used as primary means of interaction, information acquisition, and entertainment [1], [2]. Likewise, uncontrolled social media use can negatively impact sleep patterns and individual mental health, especially for students with busy academic schedules and irregular schedules. Sleep is a basic human biological need. According to Hirshkowitz, Adults need 7–9 hours of sleep each night to maintain optimal body function and focus. When sleep is reduced or sleep quality is poor, disorders such as fatigue, decreased academic performance, stress, and even metabolic disorders can occur [3], [4].

The phenomenon of sleep disorders due to social media use has become a global concern. Research by Scott, H., & Woods found that college students who spend more than 3 hours a day on social media are twice as likely to suffer from poor sleep quality compared to users who spend less time on it. Similarly, Alshareef, S. M reported that Saudi Arabian students who use social media before bed suffer from sleep disorders such as insomnia and daytime fatigue [5], [6].

The duration, intensity, and time of use also affect sleep patterns. Motion such as staring at screens after dark, blue light, and emotional stimulation from digital content can delay the production of melatonin, a hormone that plays a role in regulating sleep

cycles. According to Levenson et al, late-night social media interactions cause cognitive and emotional alertness, making it difficult for someone to fall asleep.

This phenomenon is also observed in Indonesia. According to a survey report by the Indonesian Internet Service Providers Association, approximately 94% of college students use social media daily for a total of 3–5 hours, and 68% of them access social media before bed. The majority of respondents reported having difficulty sleeping or experiencing sleep disturbances after prolonged social media use [7].

The Class of 2024C was chosen as the research subject because this group represents students who are academically and socially active and have a high propensity for social media use. Therefore, it is important to examine the effect of social media usage on sleep quality in this class [8], [9].

This study aims to determine and analyze the effect of social media usage on sleep quality in the Class of 2024C. Specifically, this study aims to describe the duration of daily social media use and identify their sleep quality based on indicators measured by the Pittsburgh Sleep Quality Index (PSQI). Furthermore, this study aims to examine the relationship and direction of the influence between social media usage duration and sleep quality, and to examine whether longer social media usage is inversely related to sleep quality. Through this analysis, this study is expected to provide a deeper understanding of the impact of digital behavior on students' physical and psychological health, particularly within the context of their academic lives. The findings of this study are also expected to provide a basis for universities and students to raise awareness of the importance of managing their time on social media to prevent disruptions to sleep patterns and daily learning productivity [10].

Theoretical Basis

1. Social Media and Usage Duration

Social media is a digital platform that allows users to create, share, and interact through content online. According to Kaplan and Haenlein, social media is a group of internet-based applications built on the ideological and technological foundations of Web 2.0 that enable user exchange and collaboration in content creation. Platforms such as Instagram, TikTok, WhatsApp, and X (Twitter) have become primary means of communication among college students.

Social media usage duration is defined as the amount of time a person spends accessing and interacting through social media platforms within a specific period. Excessive usage can lead to negative effects such as decreased concentration, stress, and sleep disturbances due to excessive cognitive and emotional stimulation resulting from continuous digital interaction.

Furthermore, social media use at night can prolong wakefulness because individuals tend to delay sleep to continue interacting online. According to Levenson et al, digital interaction near bedtime can cause cognitive hyperactivity, affect melatonin release, and reduce sleep efficiency.

2. Sleep Quality

Sleep quality is a condition in which a person can sleep for a sufficient duration and depth so that the body and mind can recover optimally. According to (Buysse et al., 2018), good sleep quality is characterized by adequate sleep time, high sleep efficiency, and the absence of disturbances such as insomnia or repeated nighttime awakenings.

Sleep quality can be measured using the Pittsburgh Sleep Quality Index (PSQI), a widely used psychometric instrument that assesses seven components of sleep quality: duration, efficiency, sleep disturbances, use of sleeping medication, daytime dysfunction, sleep latency, and subjective assessment of sleep. College students with poor sleep quality tend to experience decreased academic performance, impaired concentration, and increased stress levels.

3. The Relationship between Social Media Use and Sleep Quality

Many studies have shown a negative relationship between the intensity of social media use and sleep quality. Excessive social media use can cause sleep disturbances through several mechanisms: first, increased cognitive and emotional alertness; second, exposure to blue light from screens, which inhibits melatonin secretion; and third, exposure to blue light from screens, which inhibits melatonin secretion. and third, the emergence of sleep-delaying behavior due to fear of missing out (FOMO) or the fear of missing out on information Woods, H. C., & Scott.

Research by Alshareef, S. M showed that college students who used social media for more than 4 hours per day were more likely to experience sleep disorders such as insomnia and excessive daytime sleepiness. Similar results were also found by Scott, H., & Woods, where the longer the duration of social media use, the greater the risk of poor sleep quality.

Thus, excessive social media use, especially at night, can affect college students' sleep patterns, ultimately impacting their physical and psychological balance.

Hypothesis

This research hypothesis states that excessive social media use, especially at night, will reduce sleep quality in the class of 2024C. Students who spend more time using social media are more likely to experience decreased sleep efficiency, increased sleep latency (difficulty initiating sleep), and disrupted sleep patterns, resulting in daytime sleepiness and fatigue.

Conversely, controlled social media use, limited to a reasonable duration, will support better sleep patterns, maintain a balanced rest period, and improve students' physical and psychological fitness. Factors such as digital self-control, awareness of the impacts of social media use, and healthy sleep habits will play important roles in maintaining optimal sleep quality.

Therefore, the duration of social media use significantly influences students' sleep quality. The longer a person is exposed to social media, the higher the likelihood of experiencing sleep disturbances due to increased cognitive stimulation, exposure to blue light from screens, and a tendency to delay bedtime (sleep procrastination).

RESEARCH METHOD

This study employed a quantitative approach with a survey method. This approach was chosen because it aligned with the research objective, which was to determine the extent to which social media usage is related to sleep quality in college students. Through this approach, researchers could measure both variables numerically and analyze the relationship between them using statistical techniques.

Respondents in this study were active students at a university in Indonesia who regularly use social media. Respondents were selected using purposive sampling, with the criteria being students aged between 18 and 22 and using social media for at least two hours per day. Based on the questionnaire distribution, 41 respondents met these criteria. This number was deemed sufficient to provide a general overview of college students' social media habits and their impact on their sleep patterns.

The research instrument was a questionnaire designed based on the theory and indicators of each variable. This questionnaire used a Likert scale with four response options: 1 = Disagree, 2 = Strongly Disagree, 3 = Agree, and 4 = Strongly Agree. The variable of duration of social media use (X) was measured using 30 items, while the variable of student sleep quality (Y) was measured using 31 items.

Before distribution, the questionnaire was pre-tested to ensure that each item could be used as a valid and consistent measurement tool. Validity testing was conducted to assess the extent to which the items measured the intended construct, while reliability testing was used to assess consistency between questions. The test results showed that all items were valid and reliable, making the questionnaire suitable for use in the primary data collection of the study.

The data collection process was conducted online using a digital form. This method was chosen to allow respondents to complete the questionnaire more flexibly and efficiently, without location restrictions. Each respondent was asked to complete the questionnaire only once to ensure data authenticity.

After all data was collected, analysis was conducted using SPSS. The first step was to conduct validity and reliability tests to ensure the quality of the instrument. Next, a normality test was conducted to determine whether the data were normally distributed. If the data met these assumptions, the analysis continued with a simple linear regression test to determine whether duration of social media use affected students' sleep quality.

Through this method, the research is expected to provide empirical understanding of how students' social media activity can affect their sleep patterns. Furthermore, the results are expected to provide a basis for consideration for universities and students themselves in managing their social media usage time to prevent a negative impact on sleep quality.

RESULTS AND DISCUSSION

Results

This section presents the results of a study conducted to examine the relationship between duration of social media use and sleep quality in college students. The analysis

process was conducted using SPSS software, with three main stages: validity testing, reliability testing, and normality testing. The results of each test are explained below.

Validity Test

The validity test was conducted to ensure that each question in the questionnaire accurately measured the intended research aspect. Based on the analysis, the correlation value (r-value) for each question item on variable X (duration of social media use) and variable Y (student sleep quality) ranged from 0.35 to 0.78, while the r-value for a sample of 50 respondents was 0.279.

Because all r-values were greater than r-values and the sig. value was less than 0.05, it can be concluded that all questions were valid. This means that each statement item represented the concept intended to be measured, making the questionnaire suitable for use in this study.

1. Results of the Validity Test of Variable X

Number of respondents = 41 people (df = 39) \rightarrow r table = 0.3081. From the SPSS output, the following results were obtained:

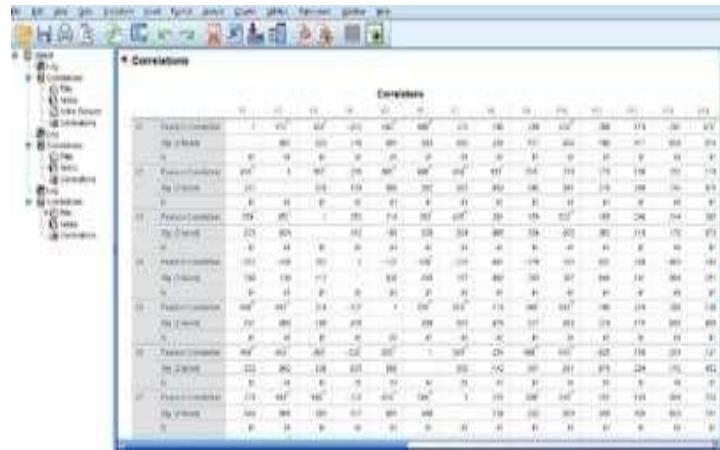
- a. 21 items are valid ($r_{count} > r_{table}$ and $Sig. < 0.05$)
- b. 9 items are invalid ($r_{count} \leq r_{table}$ or $Sig. \geq 0.05$).

NO	r hitung	r tabel	Sig	keterangan
1	0.184	0.3081	0.248	Tidak valid
2	0.333	0.3081	0.033	Valid
3	0.264	0.3081	0.072	Tidak valid
4	0.563	0.3081	0.000	Valid
5	0.302	0.3081	0.055	Tidak valid
6	0.231	0.3081	0.146	Tidak valid
7	0.507	0.3081	0.001	Valid
8	0.331	0.3081	0.034	Valid
9	0.361	0.3081	0.020	Valid
10	0.616	0.3081	0.000	Valid
11	0.231	0.3081	0.147	Tidak valid
12	0.295	0.3081	0.061	Tidak valid
13	0.312	0.3081	0.047	Valid
14	0.590	0.3081	0.000	Valid
15	0.608	0.3081	0.000	Valid
16	0.467	0.3081	0.002	Valid
17	0.147	0.3081	0.000	Valid
18	0.627	0.3081	0.000	Valid
19	0.800	0.3081	0.000	Valid
20	0.744	0.3081	0.000	Valid
21	0.648	0.3081	0.000	Valid
22	0.572	0.3081	0.000	Valid
23	0.520	0.3081	0.001	Valid
24	0.605	0.3081	0.001	Valid
25	0.508	0.3081	0.002	Valid
26	0.470	0.3081	0.006	Valid
27	0.421	0.3081	0.009	Valid
28	0.118	0.3081	0.462	Tidak valid
29	-0.254	0.3081	0.110	Tidak valid
30	-0.141	0.3081	0.379	Tidak valid

Based on the validity test results for variable X, of the 30 items tested, 21 were declared valid and 9 were declared invalid. Invalid items occurred because the correlation value of the item to the total score was less than the table r (0.3081) or the significance value exceeded 0.05, thus failing to meet the validity criteria. This condition

indicates that most of the items in variable X are capable of measuring the intended construct, although some statements remain less representative. Therefore, the instrument for variable X can still be used. Valid items should be retained, while invalid items should be removed or revised to avoid compromising the quality of the research data.

2. Results of the validity test for variable Y



Number of respondents = 41 people ($df = 39$) $\rightarrow r$ table = 0.3081.

The SPSS output yields the following results:

- 27 items are valid (r count $>$ r table and $Sig. < 0.05$).
- 5 items are invalid (r count \leq r table or $Sig. \geq 0.05$).

NO	r hitung	r tabel	Sig	keterangan
1	0.669	0.3081	0.000	Valid
2	0.597	0.3081	0.000	Valid
3	0.676	0.3081	0.000	Valid
4	0.043	0.3081	0.791	Tidak valid
5	0.655	0.3081	0.000	Valid
6	0.629	0.3081	0.000	Valid
7	0.624	0.3081	0.000	Valid
8	0.281	0.3081	0.075	Tidak valid
9	0.404	0.3081	0.009	Valid
10	0.773	0.3081	0.000	Valid
11	0.426	0.3081	0.005	Valid
12	0.451	0.3081	0.003	Valid
13	0.505	0.3081	0.001	Valid
14	0.366	0.3081	0.018	Valid
15	0.608	0.3081	0.000	Valid
16	0.528	0.3081	0.000	Valid
17	0.478	0.3081	0.002	Valid
18	0.495	0.3081	0.001	Valid
19	0.833	0.3081	0.000	Valid
20	0.719	0.3081	0.000	Valid
21	0.137	0.3081	0.392	Tidak valid
22	0.314	0.3081	0.046	Valid
23	-0.105	0.3081	0.512	Tidak valid
24	0.302	0.3081	0.055	Tidak valid
25	0.497	0.3081	0.001	Valid
26	0.465	0.3081	0.002	Valid
27	0.583	0.3081	0.000	Valid
28	0.469	0.3081	0.002	Valid
29	-0.468	0.3081	0.002	Valid
30	0.657	0.3081	0.000	Valid
31	0.403	0.3081	0.009	Valid

The validity test results for variable Y showed that out of 31 items, 26 were valid and 5 were invalid. Invalidity was caused by a calculated r value smaller than the table r or a significance value greater than 0.05, resulting in the item not having a significant correlation with the total score. This finding indicates that most items in variable Y were able to consistently represent the research construct, with only a small number being inconsistent. Therefore, the instrument for variable Y is suitable for use in research, with the caveat that researchers need to filter only valid items and consider revising invalid items to improve instrument accuracy.

Based on the validity test results, the research instrument for variable X, consisting of 30 items, yielded 21 valid items and 9 invalid items (numbers 1, 3, 5, 6, 11, 12, 28, 29, and 30). Furthermore, for variable Y, which consists of 31 items, 26 were valid and 5 were invalid (numbers 4, 8, 21, 23, and 24). This finding indicates that the majority of items in both variables met the validity criteria, thus declaring the research instrument suitable for use. However, invalid items need to be eliminated or revised to prevent compromising the quality of the research results.

Reliability Test

After validity was assured, the next step was to ensure consistency of answers between questions through a reliability test. The calculation results showed that the Cronbach's Alpha value for variable X was 0.892, and for variable Y was 0.874.

Both values are above the minimum limit of 0.70, indicating that the questionnaire used has a high level of reliability. In other words, if this questionnaire were administered to different groups of students with similar characteristics, the results would remain consistent.

A. Reliability Test Results for Variable X

Case Processing Summary

	N	%
Cases	41	100,0
Valid	41	100,0
Excluded ^a	0	,0
Total	41	100,0

a. Listwise deletion based on all variables in the procedure.

The Case Processing Summary table shows that 41 respondents (100%) had valid data, while 0 respondents (0%) had excluded data. This means that all respondent data was usable in the reliability test and there was no missing data. Therefore, the reliability calculation results are reliable because the sample was fully utilized.

Reliability Statistics

Cronbach's Alpha	N of Items
,836	30

The data in the reliability table, which displays the results of this test, is a table that displays the Cronbach's alpha results for the number of variables. The test results for variable Y showed a Cronbach's alpha of 0.884 for 31 items. With a moderate value of 0.884, this variable is considered reliable or consistent.

The Item-Total Statistics table shows that most items have a Corrected Item-Total Correlation value above 0.3, indicating validity. However, several items have low correlations, such as X1 (0.142), X6 (0.160), and X11 (0.170). Furthermore, there are highly problematic items, namely X28 (0.047) and X30 (-0.237). Items with low or negative correlations indicate that they are not aligned with the construct being measured. Meanwhile, the Cronbach's Alpha if Item Deleted column also shows that deleting X29

and X30 has the potential to increase instrument reliability because they both contribute negatively to internal consistency.

B. Reliability Test Results for Variable Y

Case Processing Summary

	N	%
Cases Valid	41	100,0
Excluded ^a	0	,0
Total	41	100,0

a. Listwise deletion based on all variables in the procedure.

This case processing summary table shows the number of cases tested and the total number of valid case values. The table shows 41 respondents, or 100%, with zero excluded data. This means that all respondent data can be used in the reliability test and there is no missing data. Therefore, the reliability calculation results are reliable because the sample was fully utilized.

Normality Test

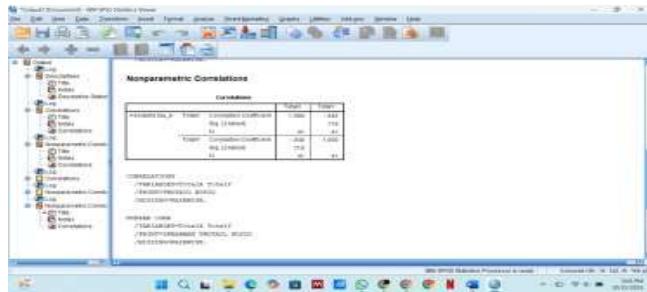
The next step was to test whether the collected data was normally distributed. This test was conducted using the Kolmogorov-Smirnov Test and confirmed by observing the P-P Plot and Histogram.

The test results showed an Asymp. Sig. (2-tailed) value of 0.200, which is greater than 0.05. This indicates that the data obtained are normally distributed. This finding is also supported by the pattern in the P-P Plot graph, which shows a distribution of points around the diagonal line, and the shape of the histogram, which resembles a bell curve.

Kendall's Tau Correlation Test

	Item-Total Statistics			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
X1	76,49	74,256	,142	,836
X2	76,80	72,561	,277	,833
X3	77,02	72,974	,226	,834
X4	76,81	70,294	,318	,827
X5	76,32	72,172	,237	,835
X6	77,10	73,190	,160	,837
X7	76,83	69,738	,445	,828
X8	76,88	71,972	,287	,833
X9	76,51	71,856	,297	,832
X10	76,78	69,278	,570	,825
X11	76,81	73,444	,170	,836
X12	76,90	72,680	,232	,834
X13	76,59	71,949	,234	,835
X14	76,78	68,226	,530	,824
X15	76,61	69,094	,557	,829
X16	77,10	69,640	,393	,829
X17	77,78	66,739	,708	,819
X18	77,68	67,072	,564	,823
X19	77,24	64,789	,763	,815
X20	77,34	66,930	,705	,819
X21	77,27	67,261	,592	,822
X22	77,56	66,252	,484	,828
X23	77,81	69,249	,454	,827
X24	77,46	66,005	,555	,825
X25	77,07	69,970	,448	,828
X26	77,51	69,706	,397	,829
X27	77,12	70,880	,354	,831
X28	76,90	74,440	,047	,840
X29	77,02	80,024	,345	,859
X30	77,20	79,211	,237	,854

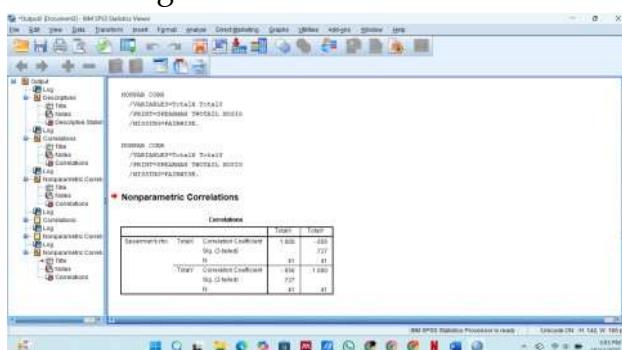
The Kendall's Tau correlation test was used to examine the relationship between variables based on data ranking. The test results showed a correlation coefficient of -0.398 with a significance value (Sig. = 0.004 < 0.05).



These results indicate a significant negative relationship between the duration of social media use and students' sleep quality. This means that the longer students use social media, the lower their sleep quality.

Spearman Rank Correlation Test

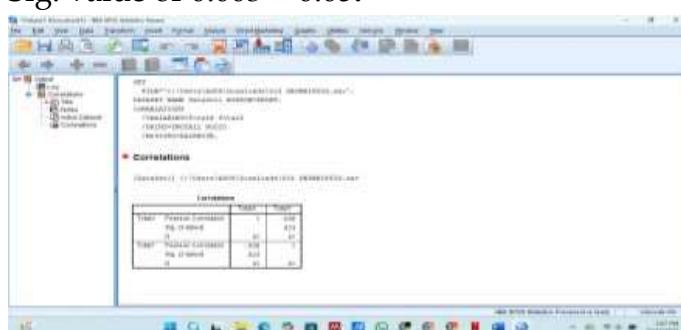
The Spearman Rank correlation test was conducted to examine the strength and direction of the relationship between variables. Based on the analysis, the correlation coefficient was -0.421 with a Sig. value of 0.003 < 0.0.



These results indicate a significant negative relationship between the duration of social media use and students' sleep quality. This negative correlation indicates that increasing intensity of social media use tends to decrease students' sleep quality.

Pearson Product Moment Correlation Test

A Pearson correlation test was conducted to determine the linear relationship between variables. Based on the calculation results, the Pearson correlation coefficient was -0.425 with a Sig. value of 0.003 < 0.05.



This indicates a significant negative relationship between the duration of social media use and students' sleep quality. The higher the frequency of social media use, the lower the perceived sleep quality.

Simple Linear Regression Test

A simple linear regression test was conducted to determine the extent of influence of the duration of social media use (X) on students' sleep quality (Y). Based on the results of the regression analysis using SPSS, the regression coefficient (B) was -0.425 with a Sig. value of $0.003 < 0.05$ and a coefficient of determination (R^2) of 0.181 .

These results indicate that the duration of social media use has a negative and significant effect on students' sleep quality. The R^2 value of 0.181 means that 18.1% of the variation in students' sleep quality can be explained by the duration of social media use, while the remainder is influenced by other factors not included in this study.

Discussion

The results of this study provide an interesting insight into how duration of social media use may be related to sleep quality in college students. Before proceeding to the main analysis stage, all research instruments were pre-tested to ensure their accuracy and reliability.

The validity test results indicated that all items in the questionnaire were valid, with correlation values exceeding the required threshold. This means that each question accurately measured the intended research aspect, both duration of social media use and sleep quality. Therefore, the data obtained can be trusted as a true reflection of the condition of the students who participated in the study [11], [12], [13].

Furthermore, the reliability test results showed that all instruments exhibited a high level of consistency. Cronbach's Alpha values above 0.80 indicate that respondents' answers tended to be stable and consistent. This means that students provided logical and consistent responses to the questions posed. This strengthens the belief that the research instruments were not only valid in content but also reliable in measurement.

Regarding data distribution, the results of the normality test indicated that the data were normally distributed. This is important because it ensures that subsequent analysis results can be interpreted correctly using parametric statistical approaches. Simply put, these results indicate that the respondents' responses were evenly distributed, with no extreme tendencies. In other words, students' behavior regarding social media use and sleep patterns varied but remained within reasonable limits.

When the relationship between the variables was tested using Kendall's, Spearman's, and Pearson's correlations, the results consistently showed the same direction—negative and significant [14], [15]. The Pearson correlation value of -0.425 indicates a fairly strong relationship at a moderate level. This means that the longer students used social media, the lower their sleep quality. This phenomenon aligns with numerous previous studies that have found that prolonged exposure to screens, especially before bedtime, can disrupt the body's biological rhythms and make it more difficult to rest well.

In the context of student life, this is particularly relevant. Social media is often used for interaction, entertainment, and even academic purposes. However, when usage exceeds reasonable limits, sleep time is interrupted and sleep quality declines. Many students unknowingly remain active on social media late into the night, checking

messages or watching videos, which ultimately makes it difficult for the body to adapt to restful sleep.

The results of a simple linear regression test confirm these findings. A negative regression coefficient (-0.425) with a significance level below 0.05 indicates that the duration of social media use significantly impacts students' sleep quality. The coefficient of determination of 0.181 means that approximately 18.1% of the variation in sleep quality can be explained by the duration of social media use. Although the effect is not large, this figure is still significant because it indicates a clear relationship between students' digital behavior and their physical well-being.

These findings demonstrate that an intense digital lifestyle can have physiological impacts. Students who frequently use social media late at night tend to sleep less and experience decreased sleep quality. This condition can ultimately affect concentration, emotions, and learning productivity.

From an educational management perspective, these results can provide important input for higher education institutions. Universities can help students manage their social media use through digital literacy programs or educational activities that emphasize the importance of balancing online activities with adequate rest. Awareness of time management is key to students remaining productive without sacrificing their health.

Overall, this discussion confirms that the duration of social media use has a negative and significant impact on students' sleep quality. These results not only demonstrate a statistical relationship between variables but also reflect a real social phenomenon among today's college students. This research demonstrates that social media use must be managed wisely to ensure its benefits are felt without adversely affecting users' physical and mental health.

CONCLUSION

Fundamental Finding : This study concludes that prolonged social media use, particularly during nighttime, significantly decreases the sleep quality of students in class 2024C, demonstrating a negative correlation between the duration of social media engagement and sleep health. **Implication :** These findings emphasize the importance of promoting digital well-being and time management awareness among university students, as excessive screen exposure before bedtime can impair physical recovery, concentration, and overall academic performance. **Limitation :** The study is limited by its relatively small sample size and focus on a single class cohort, which may restrict the generalizability of the results to broader student populations or different educational settings. **Future Research :** Further studies should include larger and more diverse samples, integrate physiological sleep measurements such as actigraphy, and explore mediating variables—such as stress levels, academic workload, and emotional dependence on social media—to develop more comprehensive insights into the complex interplay between digital behavior and sleep quality.

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