

# The Relationship Between Screen Time And Grade Point Average Among Medical Students At Prima Indonesia University

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## Abstract.

*The use of electronic devices among college students is on the rise, whether for academic or non-academic activities. Screen time encompasses various activities, such as studying, using social media, playing games, and watching videos. The purpose of this study is to determine the relationship between the duration of screen time spent on various activities and students' GPA. This study was conducted using a quantitative design with a correlational approach, involving 220 students from the 2nd, 4th, and 6th semesters as the research sample, selected using stratified random sampling. The data were obtained through a questionnaire and analyzed using Spearman's rank correlation test. The results indicate that total screen time and time spent watching videos are not significantly associated with GPA ( $P > 0.05$ ). In contrast, social media use showed a negative association with GPA ( $r = -0.196$ ;  $p = 0.004$ ), and gaming was negatively associated with GPA ( $r = -0.221$ ;  $p = 0.001$ ). Meanwhile, the use of electronic devices for studying was positively associated with GPA ( $r = 0.436$ ;  $p < 0.001$ ). This study concludes that the relationship between screen time and GPA is more strongly influenced by the type of screen-based activity rather than the overall duration of device use.*

**Keywords:** GPA; Medical Students and Screen Time.

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## I. INTRODUCTION

Technology is advancing rapidly as time goes on (1). In today's era, the form of technology most closely tied to our lives is the smartphone. The term "smartphone" refers to a mobile phone equipped with various features that allow users to search for information, play games, and socialize (2).

In Indonesia, 2021 data reveals that 62.10% of children over the age of 5 had accessed the internet in the past three months, a figure that rose to 66.48% in 2022 (3). In fact, 62.5% of teenagers in Indonesia have been reported to spend over 8 hours daily on social media platforms (4).

According to the World Health Organization, screen time is defined as the amount of time individuals spend passively engaging with entertainment media through electronic devices, typically televisions, computers, and smartphones (5). An individual's screen time can be categorized into non-recreational and recreational screen time. Non-recreational screen time encompasses the use of digital devices for educational purposes and productive tasks, including completing assignments, exploring scientific literature, and accessing online educational materials (6). On the other hand, recreational screen time refers to the usage of screens for entertainment purposes, such as playing video games, watching movies, and using computers. Screen-based activities generally involved limited physical activity and closely related to sedentary behavior. These activities are generally passive and associated with sedentary behavior. Excessive use of these activities may increase the risk of negative outcomes, including sleep disturbances, reduced psychological well-being, and decreased academic performance (7).

In the era of globalization, smartphones have become tools with both helpful and potentially harmful effects. On the positive side, they allow users to find information more easily, access educational resources, and communicate with others regardless of distance (8). In addition, smartphones also can serve as academic tools that help students to access course materials, visual medical concepts, medical illustrations, and access current information related to diseases and their management (9). Although smartphones offer several academic advantages, their excessive use for non-learning activities, including gaming and social media, may interfere with students' routines. When device use is not managed effectively, it can reduce the time students allocate to academic tasks (10). Furthermore, excessive screen time may contribute to smartphone addiction, a condition in which individuals rely heavily on their devices to the extent that their social life and

daily activities are affected. This condition has also been associated with impulse-control problems, as individuals may find it difficult to resist the urge to keep using their smartphone (11).

Grade Point Average (GPA) describes a student's academic performance in numerical form for a particular semester. In contrast, cumulative GPA provides a broader picture of academic achievement by summarizing the results obtained throughout the student's period of study (12). GPA is not merely a reflection of academic ability, as it also can be affected by individual and environmental factors that support or hinder students' academic progress (13). Internal factors represent student-related elements that may contribute to or interfere with academic progress, such as learning motivation, study discipline, and time management skills. Higher GPAs are more likely to be achieved by students who possess strong learning motivation, consistent study habits, and effective time management skills (14). External factors represent influences from outside the student that may support or interfere with academic progress, including non-academic activities, family circumstances, and financial constraints (15). When smartphone use becomes excessive and difficult to control, it may interfere with students' academic performance. Students with addictive patterns of smartphone use tend to be more vulnerable to distraction, making it harder for them to maintain focus while studying. Over time, this disruption may contribute to poorer academic outcomes. (16). Conversely, students who spend a significant amount of screen time accessing information and learning materials via YouTube, e-books, and journals tend to have higher GPAs than those who spend a significant amount of screen time for recreational purposes (17).

## II. METHODS

An analytic observational design with a cross sectional approach was used in this study. The research was conducted at the Faculty of Medicine, Prima Indonesia University. The study population consisted of medical students in their 2<sup>nd</sup>, 4<sup>th</sup>, and 6<sup>th</sup> semesters, with the study population consisting of 480 students. In this study, the respondent selection procedure used was stratified random sampling. Meanwhile, the sample size was determined using the Slovin formula, resulting in a total sample of 220 students. Questionnaires were distributed through Google forms to collect the required data from respondent. The validity of the instrument was tested based on the Corrected Item-Total Correlation, which is considered valid if the obtained value is  $>0.30$ . Furthermore, The reliability of the research instrument was evaluated using Cronbach's Alpha, with a value of  $\geq 0.60$  indicating reliability. Data analysis utilized Spearman's correlation test to demonstrate the significance of the relationship.

## III. RESULTS AND DISCUSSION

**Table 1.** Distribution of respondents based on gender

| Gender       | n          | %          |
|--------------|------------|------------|
| Male         | 49         | 22.3       |
| Female       | 171        | 77.7       |
| <b>Total</b> | <b>220</b> | <b>100</b> |

Based on respondent characteristics, the majority of participants were female, totaling 171 (77.7%), while males numbered 49 (22.3%)

**Table 2.** Distribution of respondents by semester

| Semester     | n          | %          |
|--------------|------------|------------|
| Semester 2   | 62         | 28.2       |
| Semester 4   | 80         | 36.4       |
| Semester 6   | 78         | 35.4       |
| <b>Total</b> | <b>220</b> | <b>100</b> |

Based on semester level, the largest number of respondents were from the 4<sup>th</sup> semester, totaling 80 students (36.4%). Next, 78 students (35.4%) were from the 6<sup>th</sup> semester, and 62 (28.2%) were from the 2<sup>nd</sup> semester.

**Table 3.** Validity Test

| Item                       | n     | %     |
|----------------------------|-------|-------|
| Total screen time duration | 0.439 | Valid |
| Social Media               | 0.533 | Valid |
| Learning                   | 0.307 | Valid |
| Playing Games              | 0.319 | Valid |
| Watching a Video           | 0.435 | Valid |

The validity test results were deemed valid because the All questionnaire items met the validity criterion, as their *Corrected Item-Total Correlation* values were higher than 0.30. The highest validity value was found in the social media item at 0.533, while the lowest value was found in the studying item at 0.307. Thus, the items covering total screen time, social media, studying, playing games, and watching videos were deemed valid and can be used as research instruments.

**Table 4.** Reliability Test

| Cronbach's Alpha | n |
|------------------|---|
| 0.645            | 5 |

Based on the reliability test, the Cronbach's Alpha value for the five survey items was 0.645, which is considered reliable since it exceeds 0.60.

**Table 5.** Distribution of Screen Time Duration

| Activity          | Duration Category | n   | %    |
|-------------------|-------------------|-----|------|
| Total Screen Time | < 4 hours         | 1   | 0.7  |
|                   | 4–6 hours         | 47  | 21.4 |
|                   | > 6 hours         | 172 | 78.2 |
| Social Media      | < 4 hours         | 29  | 13.2 |
|                   | 4–6 hours         | 110 | 50.0 |
|                   | > 6 hours         | 81  | 36.8 |
| Learning          | < 4 hours         | 44  | 20.0 |
|                   | 4–6 hours         | 116 | 52.7 |
|                   | > 6 hours         | 60  | 27.3 |
| Game              | < 4 hours         | 141 | 64.1 |
|                   | 4–6 hours         | 48  | 21.8 |
|                   | > 6 hours         | 31  | 14.1 |
| Video             | < 4 hours         | 75  | 34.1 |
|                   | 4–6 hours         | 87  | 29.5 |
|                   | > 6 hours         | 58  | 26.4 |

Based on Table 5, the distribution of total screen time shows that the majority of respondents—172 students (78.2%)—use electronic devices for more than 6 hours per day. There are 47 students (21.4%) who use electronic devices for 4–6 hours a day, while 1 student (0.7%) uses them for less than 4 hours a day.

Regarding social media use, the majority of respondents—110 students (50%) reported using social media for 4–6 hours daily. Respondents who used electronic devices for social media allocated more than 6 hours per day consisted of 81 students (36.8%), while those who allocated less than 4 hours per day to social media use comprised 29 students (13.2%).

The number of respondents who use electronic devices for studying consists of 116 students (52.7%) who study for 4–6 hours per day. There are 44 students (20%) who spend more than 6 hours per day studying, while 60 students (27.3%) study for less than 4 hours.

A total of 141 students (64.1%) reported using electronic devices for gaming for less than 4 hours. The number of respondents who played games for 4–6 hours per day was 48 students (21.8%), while the number of respondents who played games for more than 6 hours per day was 31 students (14.1%).

Meanwhile, 75 students (34.1%) used electronic devices to watch videos for less than 4 hours. A total of 87 students (29.5%) played video games for 4–6 hours per day, while 58 students (26.4%) played video games for a duration exceeding 6 hours daily.

**Table 6.** Distribution of Screen Time Duration

| Activity          | r      | p-value |
|-------------------|--------|---------|
| Total Screen Time | 0.103  | 0.127   |
| Social Media      | -0.196 | 0.004   |
| Learning          | 0.436  | < 0.001 |

|       |        |       |
|-------|--------|-------|
| Games | -0.221 | 0.001 |
| Video | -0.121 | 0.074 |

The findings from the Spearman correlation analysis indicated that the correlation between total screen time and GPA is 0.103, with a p-value of 0.127. A p-value exceeding the significance threshold of 0.05 indicates that total screen time is not significantly associated with students' GPA. These results are understandable because the total duration of electronic device use is not limited to entertainment but also includes academic activities. Students may use devices to read course materials, search for references, access social media, play games, or watch videos. Since these activities serve different purposes, the total duration alone is insufficient to describe its relationship with GPA.

The findings of this study are in line with those reported by Lukram et al. (2026), which states that total screen time duration has no significant relationship with students' exam scores. However, when broken down by purpose of use, academic screen time is positively correlated with exam scores, whereas non-academic use is negatively correlated (18). These findings confirm that the purpose of using electronic devices is more important than simply looking at the total time spent using them. Similar results were also found by Kaewpradit et al. (2025), who explained that students use electronic devices for various purposes, such as social media, education, and watching videos, so total screen time does not always directly reflect academic achievement (19).

Regarding the duration of social media use, a correlation coefficient of -0.196 was found, with a p-value of 0.004. This negative correlation indicates that an increase in the duration of social media use tends to be followed by a decrease in students' GPA. The present findings align with several earlier studies suggesting that excessive social media use may contribute to lower academic achievement among students. The ease of accessing social media via electronic devices allows students to frequently use social media, even while attending classes or studying independently. This situation can lead to a loss of concentration because students' attention is easily diverted when notifications come in (20). Additionally, high intensity of social media use has the potential to increase procrastination and academic stress. This makes it easier for students to put off completing assignments, makes it difficult for them to concentrate during lectures, and results in less time for studying. Previous research has also shown that students with higher levels of social media addiction tend to achieve lower GPAs (21).

In this study, a correlation coefficient of 0.436 and a p-value of 0.004 were obtained, indicating that there is a relationship between the use of electronic devices for learning and students' GPAs. This may be because students use electronic devices to access educational videos, scientific articles, e-books, and various other academic information sources. These results are consistent with the findings of Rista (2021), which show that the use of e-learning media has a significant effect on students' GPAs because it makes it easier for students to access course materials and expands the range of information sources used in academic activities (22).

The duration of video game play was negatively associated with GPA, with a correlation coefficient of -0.221 and a p-value of 0.001. This p-value indicates a statistically significant relationship, suggesting that longer time spent playing video games tended to be associated with lower GPA. Playing video games can be a form of entertainment when done in moderation. However, excessive gaming time can interfere with study time and reduce students' participation in academic activities. These findings are consistent with the study by Mahmud et al. (2023), which showed that students who play video games for at least 30 hours per week tend to have lower academic grades (23). Sun et al. also explain that video game addiction can reduce engagement in learning in terms of behavior, emotions, and cognition (24). Among medical students, Almigbal et al. (2022) found differences in the Cumulative Grade Point Average between students who experienced video game addiction and those who did not, although the level of video game addiction in this group was relatively low (25).

Meanwhile, for watching videos, the correlation coefficient was -0.121 and the p-value was 0.074, indicating no significant association with GPA. This may be influenced by the variety of video types watched by students. These videos can include entertainment, movies, lesson tutorials, instructional recordings, or educational videos. Therefore, the duration of video viewing alone is not sufficient to

determine whether this activity is related to academic achievement. Research by Ben Abou and Ennam (2024) states that binge-watching has no significant relationship with academic distraction (26). On the other hand, Yahaya and Ahmad (2025) explain that instructional videos on YouTube can improve understanding of the material through visual and interactive presentation, and allow students to review material they have not yet understood (27).

#### IV. CONCLUSION

The results of this study indicate that the majority of college students spend more than 6 hours per day on screen time. Screen time spent on studying is positively correlated with GPA, whereas screen time spent on social media and gaming is negatively correlated with GPA. Meanwhile, total screen time and screen time spent watching videos do not show a significant correlation with GPA.

Based on the research results, students are expected to manage their use of electronic devices wisely and in a balanced manner, especially for non-academic activities such as social media and gaming, so as not to interfere with the learning process and academic achievement. In addition, future research is advised to consider other factors that may influence GPA, such as sleep quality, academic stress, learning motivation, and physical activity.

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