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THE MEDIATING EFFECT OF SLEEP QUALITY IMPACT ON THE RELATIONSHIP BETWEEN SOCIAL MEDIA USAGE AND STUDENT'S ENGAGEMENT TOWARDS CLASS PARTICIPATION AMONG GAS STUDENTS

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ABSTRACT

This research explores the mediating role of sleep quality in the relationship between social media usage and student engagement among senior high school students within the Division of Davao del Norte. Existing studies suggest that excessive social media use is associated with diminished sleep quality and reduced academic engagement. This study contributes by providing empirical evidence on the relationship between social media usage, sleep quality, and student engagement within a specific local context. Furthermore, this research can serve as a valuable reference for educators and policymakers in understanding and addressing the challenges posed by social media on student well-being and academic performance. The study employs a quantitative research design, utilizing descriptive and correlational methods to analyze the relationships between variables. The data was analyzed using statistical tools such as average weighted mean, standard deviation, Pearson r, regression analysis, and the Sobel test. The collected data will be analyzed to determine the extent of social media usage, the level of sleep quality, and the level of student engagement among the participants. The study will examine the relationships between these variables and assess the mediating effect of sleep quality on the relationship between social media usage and student engagement. The findings will be significant for students, teachers, parents, schools, and DepEd officials, emphasizing the need for strategies to improve social media usage and student engagement, as well as the importance of sleep quality in achieving quality education.

KEYWORDS: *Social Media Usage, Sleep Quality, Student's Engagement, Philippines*

INTRODUCTION

Electronic screen media, including smart-phones, computers, and televisions, has become one of the most common forms of entertainment among college students worldwide. However, prolonged electronic screen media use, particularly before bedtime, has been linked to several negative outcomes such as depression, anxiety, poor sleep quality, and reduced academic performance. It further shows that sleep quality serves as a mediating factor, as excessive screen time often leads to sleep disturbances, which in turn impair students' memory, concentration, and academic engagement. This global concern emphasizes the need to examine the impact of social media use on students' academic engagement, particularly how sleep quality and fatigue may mediate this relationship (Mao et.al., 2022).

There is a real need to study how the quality of sleep affects the connection between social media use and student engagement among senior high school students. Social media has become a big part of students' daily lives, and it's important to understand how it influences their ability to pay attention and take part in class. Sleep quality plays an important role in this relationship because it can either make the effects of social media on student engagement worse or better. When students don't get enough good sleep often because of spending too much time on social media they may find it harder to focus and join activities in school. On the other hand, students who sleep well might be able to handle their social media use in a way that doesn't hurt their participation in class. Studying this is important because it helps us understand the different experiences students have while learning. The results can also guide the Department of Education in creating better support systems for students, helping them balance social media, sleep, and schoolwork for a healthier and more successful learning experience.

STATEMENT OF THE PROBLEM

The purpose of this study was to determine whether sleep quality significantly mediates the relationship between social media usage and student's engagement towards class participation. Specifically, this sought answers to the following questions:

1. What is the extent of social media usage in terms of:
    1.1. engagement level;
    1.2. time spent on social media; and
    1.3. behavior on social media
2. What is the level of sleep quality of senior high school?
    2.1. sleep duration
    3.2. sleep efficiency; and
    2.3. Morning alertness
3. What is the level of students' engagement in terms of;
    3.1. active participation
    3.2. interest
    3.3. quality of work
4. Is there a significant relationship between:

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4.1. Social Media Usage and Student Engagement towards Class Participation among Senior High School Students?

4.2. Sleep quality and student engagement towards class participation?

5. Does sleep quality significantly mediate the relationship between social media usage and students' engagement among class participation of senior high school students?

RESEARCH DESIGN

In this study, the researchers used quantitative research design to determine the relationship between the variables within the population. Quantitative research design establishes on the associations between variables. Thus, the data is usually gathered using structured research instruments. Since this study concentrate on the mediating effect of Sleep Quality on the relationship of Social Media Usage and Student's Engagement towards class participation and the relationship of the variables. All gathered data are used to interpret, analyze, and understand the data to describe substantially the data.

RESULTS AND DISCUSSION

Table 1. Summary of the Level of Social Media Usage

Indicators	Mean	Standard Deviation (SD)	Description
Time Spent on Social Media	3.63	0.50	Highly Extensive
Behavior on Social Media	3.28	0.50	Moderately Extensive
Engagement Level	3.13	0.50	Moderately Extensive
Overall	***3.34***	***0.33***	***Moderately Extensive***

Table 1 presents an overview of social media usage, looking at time spent, behavior, and engagement. The overall social media usage is "Moderately Extensive" with a mean of 3.34 and a standard deviation of 0.33. This suggests that, on average, the people surveyed engage with social media to a notable degree. The time spent on social media is "Highly Extensive" (mean of 3.63, SD of 0.50), which indicates that individuals dedicate a significant amount of time to these platforms. However, the "Behavior on Social Media" and "Engagement Level" are both "Moderately Extensive," with means of 3.28 and 3.13 respectively, and SDs of 0.50. This implies that while users spend a lot of time on social media, their specific behaviors and active participation may vary.

Table 2. Summary of the Level of Student Engagement

Indicators	Mean	Standard Deviation (SD)	Description
Interest	3.53	0.47	Highly Extensive
Active Participation	3.32	0.49	Moderately Extensive
Quality of Work	3.32	0.52	Moderately Extensive
Overall	***3.39***	***0.34***	***Moderately Extensive***

Table 2 provides a summary of student engagement, breaking it down into interest, active participation, and quality of work. Overall, student engagement is rated as "Moderately Extensive," with a mean of 3.39 and a standard deviation of 0.34. This suggests that, in general, students are reasonably engaged in their academic activities, but there is room for improvement. The relatively low standard deviation indicates that the level of engagement is fairly consistent across the surveyed group.

Table 3. Summary of the Level of Sleep Quality

Indicators	Mean	Standard Deviation (SD)	Description
Sleep Efficiency	3.63	0.50	High
Morning Alertness	3.28	0.50	Moderate
Sleep Duration	3.13	0.50	Moderate
Overall	***3.34***	***0.33***	***Moderate***

Table 3 presents a summary of sleep quality levels based on several indicators. The data reveals that, on average, participants reported high sleep efficiency with a mean of 3.63 and a standard deviation of 0.50. However, morning alertness and sleep duration were rated as moderate, with means of 3.28 and 3.13, respectively, both having a standard deviation of 0.50.

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Overall, the general sleep quality was moderate, as indicated by a mean of 3.34 and a standard deviation of 0.33. This suggests that while participants generally experience efficient sleep, there is room for improvement in morning alertness and sleep duration to achieve higher overall sleep quality.

Table 4. Significant Relationship of Social Media Usage, Sleep Quality, and Student Engagement

	Student Engagement			
	r	**p-value**	**Decision**	**Interpretation**
Social Media Usage	0.802	<.001	Reject Ho	Significant
Sleep Quality	0.802	<.001	Reject Ho	Significant

Note: Significant at p<.05

Table 4 illustrates the significant relationships between social media usage, sleep quality, and student engagement. The correlation coefficient (r) of 0.802 for both social media usage and sleep quality indicates a strong positive relationship with student engagement. The p-value of less than 0.001 in both cases leads to the rejection of the null hypothesis (Ho), confirming that these relationships are statistically significant.

Table 5. Mediation Table

Effects	**Label**	**Estimate**	**SE**	**95% Confidence Interval**		**Z-value**	**p-value**	**Decision on Ho**	**Interpretation**
				Lower	**Upper**				
Indirect	a × b	0.067	0.041	-0.013	0.147	1.638	.101	Accept Ho	Not Significant
Direct	C	0.303	0.080	0.147	0.460	3.794	< .001	Reject Ho	Significant
Total	c + a × b	0.370	0.088	0.197	0.543	4.183	< .001	Reject Ho	Significant

Table 5 presents a mediation analysis examining the relationships between sleep duration, mental fatigue, and cognitive performance. The key finding is that the indirect effect (a × b) is not significant (p = .101), leading to the acceptance of the null hypothesis (Ho). This means that mental fatigue does not act as a mediator in the relationship between sleep duration and cognitive performance. The 95% confidence interval (-0.013 to 0.147) for the indirect effect includes zero, further supporting the conclusion of non-significance.

Table 6. Path Estimates of the Mediation

Path Estimates	**Label**	**Estimate**	**SE**	**95% Confidence Interval**		**Z-value**	**p-value**	**Decision on Ho**	**Interpretation**
				Lower	**Lower**				
IV → MV	a	0.165	0.0970	0.0256	0.355	1.70	0.090	Accept Ho	Not Significant
MV → DV	B	0.406	0.0645	0.2791	0.532	6.29	<.001	Reject Ho	Significant
IV → DV	c’	0.303	0.0799	0.1466	0.460	3.79	<.001	Reject Ho	Significant

Table 6 presents a detailed path analysis of a mediation model, examining the relationships between sleep duration (IV), mental fatigue (MV), and cognitive performance (DV). The analysis reveals that the path from sleep duration to mental fatigue (a) is not significant (p = 0.090), leading to the acceptance of the null hypothesis (Ho). This suggests that changes in sleep duration do not strongly predict changes in mental fatigue. However, the path from mental fatigue to cognitive performance (B) is significant (p <.001), indicating that higher levels of mental fatigue have a direct and negative impact on cognitive performance.

SUMMARY OF FINDINGS

The study found that many students spend a lot of time on social media, but they’re not always using it in active or productive ways. Even though they’re online for long periods, their actual activity like posting, commenting, or joining academic groups is only at a moderate level. This shows that students might be mostly just scrolling through content without really engaging. Still, the study showed that social media use has a strong positive connection to student engagement. This means that when students use social media in meaningful ways, it can help them feel more connected and involved in their studies.

Lastly, the study looked at how sleep and tiredness affect students' thinking and school performance. It found that getting enough sleep helps improve thinking skills and school performance, no matter how mentally tired students feel. Tiredness, especially emotional or physical exhaustion, also affects performance, but it doesn’t fully explain the connection between sleep and how well students think. This means that both sleep and fatigue play separate but important roles in how students learn and perform in school.

CONCLUSION

This study shows how social media use, sleep quality, student engagement, mental tiredness, and thinking skills are all

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connected in complex ways. It found that while students spend a lot of time on social media, they're not always using it actively. Most of them just scroll through content instead of interacting. Still, there was a strong positive link between social media use and student engagement. This means that when students use social media in a meaningful or helpful way like for learning or connecting with classmates it can actually support their school involvement. This challenges the common idea that social media is only a distraction, and shows it can also be a useful academic and social tool if used wisely.

In general, the results show that helping students do better in school takes more than just focusing on academics. To really support student success, we also need to look at their sleep habits, how they use social media, and how they're feeling mentally. Encouraging students to use social media in a balanced way, teaching them good sleep habits, and offering emotional and mental support can all help improve their performance. These findings highlight the importance of supporting students not just in the classroom, but in their daily lives as well.

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