



The Correlation Between Sleep Quality and Stress Levels with Learning Achievement in Adolescents at Mts Saintek Nurul Qur'an Hdwr in 2026

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ABSTRACT

Poor sleep quality and high stress levels are common problems experienced by adolescents and can have an impact on academic performance. Adolescents who experience sleep disturbances tend to experience decreased concentration, memory, while excessive stress can interfere with thinking abilities and academic performance. The prevalence of sleep disturbances among adolescents worldwide is reported to be high, at around 63%. In addition, the Indonesia National Adolescent Mental Health Survey (I-NAMHS) report states that 1 in 3 adolescents (34.9%) in Indonesia experienced mental health problems within a 12-month period, and 5.5% of adolescents aged 10–17 years met the criteria for one mental disorder. Based on observations of 10 students, it was found that around five students chose to run away due to the busy schedule at the boarding school, which caused their sleep quality to decline. Five of them complained of increased stress levels, such as many problems with friends, worrying about memorisation and assignments, environmental factors, ignorance of friends, and difficulty managing time with so many activities

INTRODUCTION

The phenomenon of declining academic performance has become a global concern. According to the 2022 Programme for International Student Assessment (PISA) report by the Organisation for Economic Co-operation and Development (OECD), student scores have dropped by approximately 10–15 points in reading, mathematics, and science compared to 2018. The OECD (2023) states that this decline is the largest in the past two decades, driven by the COVID-19 pandemic, the limitations of online learning, and disparities in access to education.

In Indonesia, the 2022 PISA results indicate that achievement levels remain low, with scores of 379 in mathematics, 398 in science, and 371 in reading, representing a decline of approximately 12–13 points compared to 2018 (Alam, 2023). Furthermore, only a small proportion of students reached the minimum proficiency level (PISA, 2023). This situation reflects low levels of 21st-century skills, including critical thinking and higher-order thinking skills (HOTS), indicating that the quality of learning has not yet been optimized (Alam, 2023).

At the regional level, the Special Region of Yogyakarta has also experienced a decline in academic performance. Data from Harian Jogja (2024) shows a decline in PISA scores in reading, mathematics, and science, although they remain above the national average. At the district level, the Bantul Education, Youth, and Sports Office recorded a decline in the average score of the 2024 Regional Standardized Education Assessment (ASPD) compared to the previous year. Research at the Ali Maksum Krapyak Islamic Boarding School in Yogyakarta also showed that 49.7% of students scored below average due to a lack of regular study habits, fatigue, and social media distractions (EtD UGM, 2022).

In addition to academic factors, adolescents' mental health is also a concern. Survey results indicate that 72.9% of respondents showed signs of depression, and 52% of them exhibited tendencies toward self-harm. The Indonesia National Adolescent Mental Health Survey (I-NAMHS) reports that 34.9% of adolescents experience mental health issues and 5.5% meet the criteria for a mental disorder (Wahdi et al., 2022; Sulaiman, 2023).

Another influential factor is sleep quality. Adolescents tend to have poor sleep quality, with a prevalence reaching 63% (Athiutama et al., 2023). In fact, sleep plays a crucial role in energy recovery, cell repair, and the integration of new knowledge (Gunarsa & Wibowo, 2021). Poor sleep quality can have negative effects on physical and cognitive health.

In the Islamic boarding school environment, students are faced with a demanding schedule of academic and religious activities. These conditions require strong time management skills but can also lead to fatigue, stress, and sleep disturbances. These factors can affect concentration, motivation to learn, and academic performance.

Preliminary observations at several Islamic boarding schools indicate limited sleep time, increased stress, and variations in students' academic

achievement. Therefore, research is needed to analyze the relationship between sleep quality and stress levels and students' academic performance.

- General Objective: To determine the relationship between sleep quality and stress levels among adolescents at MTs Saintek Nurul Qur'an HDWR (Haji Dalwari)
- Specific Objectives: To determine the relationship between sleep quality and academic achievement among adolescents at MTs Saintek Nurul Qur'an HDWR (Haji Dalwari) and to determine the relationship between stress levels and academic achievement among adolescents at MTs Saintek Nurul Qur'an HDWR (Haji Dalwari)

LITERATURE REVIEW

Sleep is a physiological process essential for physical and mental recovery (Mawaddah, 2021). Adequate sleep plays an important role in maintaining energy, brain function, and overall health, which are crucial for students' learning performance (Fadlilah et al., 2020). Sleep quality is not only determined by duration but also by several components, including subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction, as measured by the Pittsburgh Sleep Quality Index (PSQI) (Buysse et al., 1989).

Stress is defined as a state of mental tension or worry resulting from challenging situations (WHO, 2023). In academic settings, students frequently experience stress due to academic demands such as exams and assignments. High stress levels can impair concentration, reduce cognitive performance, and negatively affect learning outcomes. Stress may arise from physical, social, and psychological factors (Priyoto, 2020).

Learning achievement refers to the outcomes obtained by students after the learning process, including cognitive, affective, and psychomotor aspects (Rosyid, 2020; Fadli, 2021). Learning achievement is influenced by internal factors such as physical condition and psychological aspects, including sleep quality and stress level, as well as external factors such as the learning environment (Rosyid, 2020).

Adolescence is a transitional developmental stage characterized by physical, emotional, and social changes, during which individuals are more vulnerable to stress and sleep disturbances (Niman et al., 2024).

The hypotheses of this study are:

1. There is a relationship between sleep quality and academic achievement among adolescents at MTs Saintek Nurul Qur'an HDWR in 2025.
2. There is a relationship between stress levels and academic achievement among adolescents at MTs Saintek Nurul Qur'an HDWR in 2025.

The conceptual framework of this study is the relationship between sleep quality and stress levels and academic achievement
 (Independent Variable) (Dependent Variable)

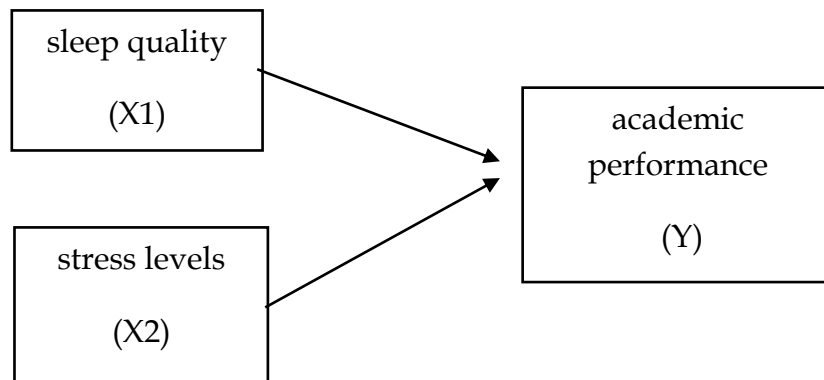


Figure 2. Research Conceptual Framework

METHODOLOGY

This study employed a quantitative descriptive method. The population of this study consisted of 38 students at MTs Saintek Nurul Qur’an HDWR, and the sample comprised the entire population, namely 38 students. Data were collected by distributing questionnaires. The data analysis techniques used in this study included univariate and bivariate analysis.

RESEARCH RESULT

This study was conducted at MTs Saintek Nurul Qur’an HDWR with a total of 38 respondents. Data were collected using questionnaires distributed to all participants. The following tables describe the characteristics of respondents and the results of univariate and bivariate analyses.

Tabel 1. Distribution of Respondents by Age, Grade, and Gender

Respondent Characteristics	Frequency	Percentage (%)
Age		
12 Years	6	15.8%
13 Years	14	36.8%
14 Years	10	26.3%
15 Years	7	18.4%
16 Years	1	2.6%
Grade		
Grade 7	15	39.5%
Grade 8	12	31.6%

Grade 9	11	28.9%
Gender		
Male	25	65.8%
Famale	13	34.2%
Total	38	100.0%

Most respondents were 13 years old (36.8%), in Grade 7 (39.5%), and predominantly male (65.8%).

Univariate Analysis

Table 2. Distribution of Sleep Quality

Sleep Quality	Frequency	Percentage (%)
Good sleep quality (≤ 5)	8	21.1
Poor sleep quality (> 5)	30	78.9
Total	38	100.0

The majority of respondents (78.9%) had poor sleep quality (PSQI score > 5).

Table 3. Distribution of Stress Levels

Stress Level	Frequency	Percentage (%)
Mild	11	28.9
Moderate	21	55.3
Severe	6	15.8
Total	38	100.0

Most respondents experienced moderate stress (55.3%).

Table 4. Distribution of Academic Achievement

Academic Achievement	Frequency	Percentage (%)
High	3	7.9
Moderate	34	89.5
Low	1	2.6
Total	38	100.0

Most students (89.5%) had moderate academic achievement.

Bivariate Analysis

Relationship Between Sleep Quality and Academic Achievement

Table 5. Chi-Square Test Results

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.330	2	0.016
Likelihood Ratio	6.900	2	0.032
Linear-by-Linear Association	0.504	1	0.478
N of Valid Cases	38		

The Chi-Square test showed a significant relationship between sleep quality and academic achievement ($p = 0.016 < 0.05$).

Table 6. Crosstabulation of Sleep Quality and Academic Achievement

Sleep Quality	High		Moderate		Low		Total	
	N	%	N	%	N	%	N	%
Good	2	5.3	5	13.2	1	2.6	8	21.1
Poor	1	2.6	29	76.3	0	0.0	30	78.9
Total	3	7.9	34	89.5	1	2.6	38	100.0

Students with good sleep quality were more likely to achieve higher academic performance compared to those with poor sleep quality.

These findings are consistent with previous studies indicating that better sleep quality improves concentration, memory, and learning performance.

Relationship Between Stress Levels and Academic Achievement

Table 7. Kendall's Tau Correlation Test

Description	Value
Correlation Coefficient	0.322*
Sig. (2-tailed)	0.039
N	38

There was a significant relationship between stress levels and academic achievement ($p = 0.039 < 0.05$).

Table 8. Crosstabulation of Stress Levels and Academic Achievement

Stress Level	High		Moderate		Low		Total	
	N	%	N	%	N	%	N	%
Mild	2	5.3	9	23.7	0	0.0	11	28.9
Moderate	1	2.6	20	52.6	0	0.0	21	55.3
Severe	0	0.0	5	13.2	1	2.6	6	15.8
Total	3	7.9	34	89.5	1	2.6	38	100.0

Students experiencing severe stress tended to have lower academic achievement. Higher stress levels negatively affected students' ability to concentrate and perform academically.

These results align with previous studies showing that increased academic stress leads to decreased academic performance, while lower stress levels support better learning outcomes.

DISCUSSION

The Relationship Between Sleep Quality and Learning Achievement Among Adolescents. Based on the data analysis examining the relationship between sleep quality and learning achievement among adolescents at MTs Saintek Nurul Qur'an HDWR, a significance value of 0.016 was obtained. Since the p-value (0.016) is less than 0.05, the null hypothesis (H_0) is rejected. This indicates that there is a statistically significant relationship between sleep quality and learning achievement among adolescents at MTs Saintek Nurul Qur'an HDWR in 2025.

According to Rosyid (2020), factors influencing students' learning achievement can be categorized into internal and external factors. Internal factors include both physical and psychological aspects. One important physical aspect is sleep quality, which directly affects bodily conditions, including energy levels, metabolism, and brain function. Students with good physical health tend to have better concentration and learning endurance, whereas poor physical conditions may hinder academic achievement.

This finding is consistent with the study conducted by Rachmawati and Rahmadewi (2023), which examined the relationship between sleep quality and learning achievement among students in grades X-XII at SMA Muhammadiyah 7 Yogyakarta. Their results showed a significant relationship ($p = 0.000$) based on the Chi-square test. The correlation coefficient was 0.703, indicating a strong and positive relationship, meaning that better sleep quality is associated with higher academic achievement.

Similarly, Nazara et al. (2025) reported a significance value (Sig. 2-tailed) of 0.001 (< 0.05) with a correlation coefficient of 0.789, indicating a strong positive and significant relationship between sleep quality and academic achievement among students in grades X and XI at SMAS Bina Siswa Laut

Dandang. This implies that better sleep quality leads to better academic performance.

Furthermore, this study is supported by Hidayatullah (2021), who found a significant relationship between sleep quality and learning achievement among grade XI science students at MAN 2 Semarang, with $p = 0.000$ and $r = 0.666$, indicating a strong positive correlation. This means that poorer sleep quality is associated with lower academic performance.

The Relationship Between Stress Level and Learning Achievement Among Adolescents. Based on the data analysis examining the relationship between stress level and learning achievement among adolescents at MTs Saintek Nurul Qur'an HDWR, the Kendall's Tau correlation coefficient was 0.332 with a significance value (2-tailed) of 0.039 (< 0.05). This indicates that stress level has a statistically significant relationship with learning achievement. The relationship is positive and tends to move in the same direction, meaning that higher stress levels are associated with lower academic achievement.

According to Rosyid (2020), intellectual ability plays an important role in helping students understand and solve academic problems. However, intellectual ability is not the only factor affecting learning achievement. Other internal factors, such as stress level, also play a significant role. Individuals experiencing stress tend to have impaired concentration, which reduces their ability to engage effectively in the learning process. This condition may lead to decreased learning quality and ultimately lower academic achievement.

This finding is in line with Zulfa et al. (2025), who found a statistically significant relationship between stress level and learning achievement ($p = 0.028$; $p < 0.05$) using the Chi-square test. The Odds Ratio (OR) value of 4.276 indicates that individuals experiencing stress are 4.276 times more likely to have lower academic performance compared to those without stress.

Similarly, Gibran and Wiyono (2022) found that academic stress has a significant relationship with academic achievement, with a correlation coefficient (r) of 0.203 and a significance value of 0.037. The relationship indicates that an increase in academic stress leads to a decrease in academic achievement, and vice versa.

This study is also supported by Simanjuntak and Kusumiati (2023), who reported that academic stress has a significant and negative correlation with learning achievement, with Pearson correlation values ranging from 0.247 to 0.743 and significance values between 0.00 and 0.02. This indicates that higher levels of academic stress result in lower learning success, while lower stress levels are associated with better academic achievement.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the study conducted on November 25, 2025, involving 38 students at MTs Saintek Nurul Qur'an HDWR, it can be concluded that there is a statistically significant relationship between sleep quality and students' academic achievement, as well as between stress levels and academic achievement. These findings indicate that both sleep quality and stress level play important roles in influencing students' learning outcomes.

Based on these findings, several recommendations can be proposed. Schools are encouraged to provide education to students regarding the importance of maintaining good sleep quality and managing stress effectively in order to support better concentration and academic performance. In addition, students are advised to adopt a healthy lifestyle, such as engaging in regular physical activity, maintaining consistent sleep schedules, having breakfast before daily activities, and balancing study time with adequate rest to reduce academic pressure. Furthermore, the findings of this study are expected to serve as a reference for MTs Saintek Nurul Qur'an HDWR in developing and evaluating programs or policies related to student well-being, particularly in terms of sleep quality, stress management, and academic achievement improvement.

ADVANCED RESEARCH

This study is expected to serve as a reference for future researchers, particularly those interested in examining the relationship between sleep quality, stress levels, and academic achievement among adolescents. Future research is recommended to further develop similar studies by incorporating in-depth interview and observational methods in order to obtain a more comprehensive understanding of the issues being investigated.

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REFERENCES

- Alam, S. (2023). PISA 2022 results: Reflection on the quality of national education in 2023. Media Indonesia. Retrieved May 15, 2024, from <https://mediaindonesia.com/opini/638003/hasil-pisa-2022-refleksi-mutu-pendidikan-nasional-2023>
- Athiutama, A., Ridwan, R., Febriani, I., Erman, I., & Trulianty, A. (2023). Social media use and sleep quality among adolescents. *Jurnal Keperawatan Rafflesia*, 5(1), 57-64. Retrieved from <http://jurnal.poltekkeskemenkesbengkulu.ac.id/index.php/jkr/article/view/867/378>
- Gibran, H., & Wiyono, B. D. (2022). The effect of academic stress and burnout on learning achievement during online learning at SMPN 1 Galis Pamekasan. *Correspondencias & Análisis*, 1-23.

- Hidayatullah, M. G. (2021). The relationship between sleep quality and learning achievement among grade XI students at MAN 2 Semarang (Undergraduate thesis). Universitas Islam Sultan Agung.
- Programme for International Student Assessment (PISA). (2023). PISA 2022 results: Factsheets Indonesia. OECD. Retrieved May 15, 2024, from <https://www.oecd.org/publication/pisa-2022-results/country-notes/indonesia-c2e1ae0e/>
- Rachmawati, S., & Rahmadewi, T. (2023). The relationship between sleep quality and learning achievement among grade X-XII students at SMA Muhammadiyah 7 Yogyakarta. *Journal of Health Information and Promotion*.
- Simanjuntak, E. D., & Kusumiati, R. Y. (2023). Academic stress and learning achievement during the COVID-19 pandemic. *Psikosains*, 18(52), 10-19.
- Wahdi, A. E., Seyawan, A., Putri, Y. A., Wilopo, S. A., Erskine, H. E., Wallis, K., McGrath, C., Blondell, S. J., Whiteford, H. A., Scott, J. G., Blum, R., Fine, S., Li, M., & Ramaiya, A. (2022). Indonesia National Adolescent Mental Health Survey (I-NAMHS) report 2022. Pusat Kesehatan Reproduksi, DI Yogyakarta.