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# The Relationship Between Sleep Hygiene Behavior And Sleep Quality In Male Adolescents At Mbs Al Amin Bojonegoro Middle School Based On Dorothea E Orem's Theory

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***Abstract***

*Adolescence is a period that is vulnerable to sleep quality disorders due to busy activities and less than optimal sleep hygiene implementation, especially in Islamic boarding school environments. This study aims to analyze the relationship between sleep hygiene behavior and sleep quality in male adolescents at SMP MBS Al Amin Bojonegoro based on Dorothea E. Orem's Self-Care Deficit theory. This study used a quantitative correlational analytic design with a cross-sectional approach. The study population was 66 students in grades VIII and IX, with a sample of 57 respondents selected using a simple random sampling technique. The research instrument used a sleep hygiene questionnaire and the Pittsburgh Sleep Quality Index (PSQI). Data analysis was carried out univariately and bivariately using the Spearman correlation test. The results showed that 52.6% of respondents had poor sleep hygiene behavior and 56.1% had poor sleep quality. Spearman analysis showed a significant relationship between sleep hygiene behavior and sleep quality (p = 0.000) with a strong correlation strength (r = 0.769). This study concludes that better sleep hygiene implementation is associated with better sleep quality, so strengthening self-care behavior needs to be optimized to improve the sleep quality of adolescents in Islamic boarding school environments.*

***Keywords: Adolescents, Cross-Sectional Study, Self-Care, Sleep Hygiene, Sleep Quality***

## INTRODUCTION

Adolescence is a transitional phase characterized by physical, emotional, and social changes, necessitating adequate and quality sleep to support growth, development, and cognitive and psychological function (Lukman n., 2024; Rini & Tamar, 2023). Adolescents need approximately 8 to 10 hours of sleep each night, and sleep hygiene is a key factor influencing sleep quality (Jakobsson et al., 2024). At MBS Al Amin Bojonegoro Middle School, all students reside at a boarding school with busy, scheduled activities from early morning until night, potentially reducing rest time and decreasing sleep quality (Khoirul et al., 2020).

In addition to formal education, students also participate in various Islamic boarding school programs, such as Quran memorization, moral development, research, foreign language reinforcement, muhadloroh (recitation of the Quran), and a target of memorizing five chapters (juz) each year. These busy activities can potentially lead to irregular sleep schedules, late nights, reduced sleep duration, and decreased sleep quality.

Sleep hygiene plays a crucial role in maintaining adolescent sleep quality (Ayuningdyah et al., 2024). However, sleep disorders remain a significant problem, with a prevalence of 19.1% globally, around 67% in Indonesia in 2020 (WHO, 2020 in Sains et al., 2025), and reaching 73.4% in Indonesian adolescents (Makrina et al., 2023). Various studies in Islamic boarding schools also show a high proportion of poor sleep quality, namely 63.3% (Faradilla et al., 2024), 85.9% (Salsha Bila Rahayuningtyas, 2024), 59.1% (Hanafi et al., 2024), and 76% (Iswatin Khoiroh, 2024). Initial survey results at MBS Al Amin Bojonegoro Middle School indicate that most students experience sleep disorders and have not implemented proper sleep hygiene.

Changes in adolescent sleep patterns are influenced by biological, psychological, and environmental factors. In Islamic boarding schools, busy schedules and poor sleep hygiene practices can lead to fatigue, decreased concentration, and health problems. This condition aligns with the Self-Care Deficit theory, which explains that sleep hygiene is part of self-care behaviors to maintain health (Nursalam, 2020). Research by Damanik et al. (2022) also demonstrated a significant relationship between sleep hygiene behaviors and students' sleep quality.

This study aims to analyze the relationship between sleep hygiene behavior and sleep quality in male adolescents at Al Amin Bojonegoro Middle School (SMP MBS). This research is important as a basis for developing efforts to improve sleep quality through the implementation of sleep hygiene in Islamic boarding schools. The novelty of this study lies in its focus on male adolescents at Al Amin Bojonegoro Middle School (SMP MBS) with the characteristics of an integrated Islamic boarding school curriculum, analyzed using the Self-Care Deficit theory perspective.

## RESEARCH METHODS

This study employed a quantitative correlational analytical method through a cross-sectional approach. This design was used to analyze the relationship between sleep hygiene behavior as the independent variable and sleep quality as the dependent variable in male adolescents at Al Amin Bojonegoro Middle School (SMP MBS). Through a cross-sectional approach, measurements of both variables were conducted simultaneously at one point in time without any follow-up, allowing for simultaneous analysis of the relationship between the variables (Nursalam, 2020).

The population in this study was all male adolescents in grades VIII and IX at SMP MBS Al Amin Bojonegoro, totaling 66 students (Nursalam, 2020). The sample size was calculated using the Slovin formula with a 5% error rate, resulting in 57 respondents. Sampling used a probability sampling technique with a simple random sampling method through a lottery system so that each member of the population had an equal opportunity to become a respondent (Sastroasmoro & Ismail, 1995; Nursalam, 2020).

The research instruments consisted of a sleep hygiene questionnaire and the Pittsburgh Sleep Quality Index (PSQI). The sleep hygiene questionnaire was developed by researchers based on Amir's (2007) theory, which covers aspects of sleep and wake schedules, the environment and behavior before bed, and diet, with 12 questions. Meanwhile, sleep quality was measured using the PSQI questionnaire developed by Buyysse et al. (1989), modified by Diah Ayu Agustin (2025), and then readjusted to the respondents' characteristics without changing the basic measurement concept. The sleep quality instrument consists of 17 questions covering seven assessment components. All instruments have undergone validity and reliability testing and are declared valid and reliable for use in research (Rosita et al., 2021).

The research procedure began with the submission of ethical approval and research permits, followed by a preliminary study at SMP MBS Al Amin Bojonegoro. After obtaining permission, the researcher explained the research objectives to respondents, requested informed consent, provided an explanation of how to complete the questionnaire, and checked the completeness of the answers after the questionnaires were returned (Nursalam, 2020). The collected data were then processed through editing, coding, scoring, and tabulating stages before being analyzed. Univariate analysis was used to describe the distribution of each variable, while bivariate analysis used the Spearman correlation test with a significance level of $\alpha < 0.05$ to determine the relationship between sleep hygiene behavior and sleep quality. All data analysis was performed using SPSS for Windows (Sugiyono, 2020; Hafni Sahir, 2022).

## RESULTS AND DISCUSSION

### Overview of research location

**Table 1. General Data on the Dormitory Environment of MBS Al Amin Bojonegoro Middle School in 2026**

| No | Environmental Data | Amount/Description |
|---|---|---|
| 1 | Number of dormitory rooms | 12 rooms |
| 2 | Occupants per room | 14 students |
| 3 | Housing system | Hostel |
| 4 | Wake up schedule | 03.00 WIB |
| 5 | Sleep schedule | 10:00 PM WIB |
| 6 | Lighting | Lights available |
| 7 | Ventilation | Ventilation available |

**Table 2. Various facilities at MBS AL Amin Bojonegoro Middle School**

| No | Facility | Amount |
|---|---|---|
| 1. | Principal's office | 1 Room |
| 2. | Teacher's room | 1 Room |
| 3. | Classroom | 6 Rooms |
| 4. | Computer Lab | 1 Room |
| 5. | Library | 1 Room |
| 6. | Mosque | 1 Room |
| 7. | Bathroom | 2 Rooms |
| 8. | School Health Unit (UKS) | 1 Room |
| 9. | Canteen | 1 Room |

### Respondent General Data

**Table 3. Frequency Distribution by Age of Male Adolescents at MBS Al Amin Bojonegoro Middle School in 2026**

| No | Age | Frequency (f) | Percentage (%) |
|---|---|---|---|
| **1.** | 12 | 11 | 19.3 |
| **2.** | 13 | 19 | 33.3 |
| **3.** | 14 | 13 | 22.8 |
| **4.** | 15 | 14 | 24.6 |
| | Amount | 57 | 100.0 |

Based on table 3, it can be seen that of the 57 respondents, a small proportion were aged 13, namely 19 (33.3%).

**Table 4. Frequency Distribution by Class of Male Adolescents at MBS Al Amin Bojonegoro Middle School in 2026**

| No | Class | Frequency (f) | Percentage (%) |
|---|---|---|---|
| **1.** | 8 | 30 | 52.6 |
| **2.** | 9 | 27 | 47.4 |
| | Amount | 57 | 100.0 |

Based on table 4, it can be seen that of the 57 respondents, more than half were in class 8, namely 30 (52.6).

**Respondent Specific Data**

**Table 5. Frequency Distribution of Respondents Based on Sleep Hygiene in Male Adolescents at MBS Al Amin Bojonegoro Middle School in 2026.**

| No | *Sleep hygiene* | Frequency (f) | Percentage (%) |
|---|---|---|---|
| **1.** | Good | 4 | 7.0 |
| **2.** | Enough | 23 | 40.4 |
| **3.** | Not enough | 30 | 52.6 |
| | Amount | 57 | 100.0 |

Based on table 5, it can be seen that of the 57 respondents in male adolescents at MBS Al Amin Bojonegoro Middle School, more than half of the respondents had poor sleep hygiene, namely 30 (52.6%) respondents.

**Table 6. Frequency Distribution of Respondents Based on Sleep Quality in Male Adolescents at MBS Al Amin Bojonegoro Middle School in 2026**

| No | Sleep Quality | Frequency (f) | Percentage (%) |
|---|---|---|---|
| **1.** | Good | 4 | 7.0 |
| **2.** | Enough | 21 | 36.8 |
| **3.** | Not enough | 32 | 56.1 |
| | Amount | 57 | 100.0 |

Based on table 6, it can be seen that of the 57 respondents in male adolescents at MBS Al Amin Bojonegoro Middle School, more than half of the respondents had poor sleep quality, as many as 32 (56.1%) respondents.

**Table 7. Relationship between Sleep Hygiene Behavior and Sleep Quality in Male Adolescents at MBS Al Amin Bojonegoro Middle School in 2026**

| *Sleep hygiene* | | Sleep Quality | | Total |
|---|---|---|---|---|
| | Good | Enough | Not enough | |
| Good | 4 (100%) | 0 (0.0%) | 0 (0.0%) | 4 (100%) |
| Enough | 0 (0.0%) | 21 (91.3%) | 2 (8.7%) | 23 (100%) |
| not enough | 0 (0.0%) | 0 (0.0%) | 30 (100%) | 30 (100%) |
| Total | 4 (7.0%) | 21 (36.8%) | 32 (56.1%) | 57 (100.0%) |
| *Spearman Rank Test: p-value = 0.00; a = 0.05* | | | | |

Based on Table 7, the analysis results show that respondents with good sleep hygiene had good sleep quality, namely 4 respondents (100%). Furthermore, respondents with adequate sleep hygiene mostly had adequate sleep quality, namely 21 respondents (91.3%), while a small portion had poor sleep quality, namely 2 respondents (8.6%). In addition, respondents with poor sleep hygiene mostly had poor sleep quality, namely 30 respondents (100%).

**Table 8. Spearman Rho Statistical Test of the Relationship between Sleep Hygiene Behavior and Sleep Quality in Male Adolescents at MBS Al Amin Bojonegoro Middle School in 2026**

| | | | ***Sleep hygiene*** | **Sleep quality** |
|---|---|---|---|---|
| ***Spearman Rho*** | *Sleep hygiene* | *Correlation Coefficient* | 1,000 | .769 |
| | | Sig. (2 tailed) | . | .000 |
| | | N | 57 | 57 |
| | Sleep Quality | *Correlation Coefficient* | .769 | 1,000 |
| | | Sig. (2 tailed) | .000 | . |
| | | N | 57 | 57 |

## Discussion

### Identification of Sleep Hygiene in Male Adolescents at MBS AL Amin Bojonegoro Middle School

Table 3 shows that more than half of respondents had poor sleep hygiene (30 respondents (52.6%), sufficient (23 respondents (40.4%), and only a small percentage had good sleep hygiene (4 respondents (7.0%). This indicates that many teenagers are still unable to properly implement healthy sleep habits.

This condition may be influenced by the characteristics of the respondents in this study. Table 1 shows that a small proportion of respondents were 13 years old, namely 19 respondents (33.3%). This age group is included in the early adolescent group, where at this stage, adolescents are still developing physically, psychologically, and socially. Therefore, the ability to control themselves and healthy sleep habits is not optimal. In addition, adolescents at this age usually interact more frequently with peers, which can affect the regularity of bedtimes and the implementation of sleep hygiene. Table 2 shows that more than half of the respondents were in grade 8, as many as 30 respondents (52.6%). Grade 8 students have busy formal and informal activities. This condition can impact sleep habits or the implementation of sleep hygiene in adolescents, especially in managing regular bedtimes and waking hours.

The results of this study are in line with previous research conducted by Purnama Sari et al., (2025) which showed that of the 87 respondents who had poor sleep hygiene levels, 40 (46.0%) respondents. Another study conducted by Talaia et al. (2025) showed that 93.6% had poor sleep hygiene. Sleep hygiene is a series of behaviors and habits carried out before bed to help a person get effective sleep and meet normal sleep needs (Saparwati & Lestari, 2023). Sleep hygiene is not only related to the length of sleep time, but also includes various habits that can support a person's regular sleep and rest patterns. According to Amir, (2007), components of sleep hygiene include sleep-wake schedules, sleep environment, diet, and pre-bedtime habits. A regular sleep schedule, such as going to bed and waking up at the same time every day, can help the body form a good circadian rhythm. In addition, a comfortable, quiet sleep environment, appropriate lighting, and a supportive room temperature also play an important role in creating a comfortable rest atmosphere. Conversely, a noisy environment, an uncomfortable bed, and emotional conditions such as stress or anxiety can disrupt sleep. In addition to environmental factors, diet and pre-bedtime habits also affect sleep hygiene. Consuming heavy meals or caffeinated beverages before bed can make it difficult to fall asleep and disrupt regular sleep patterns. Guidelines for good sleep hygiene include going to bed and waking up at regular intervals, avoiding long naps, reducing noise, and using the bed only for rest and sleep (Dissertations & Hodges-Crowder, 2007).

According to researchers, the high proportion of poor sleep hygiene (52.6%) indicates that adolescents' ability to perform self-care related to meeting sleep needs is still suboptimal. Individual self-care skills play a role in meeting health needs, including sleep and rest needs. If these abilities are

not optimal, then the sleep hygiene behaviors implemented also tend to be suboptimal. This suboptimal self-care behavior may be influenced by the respondents' age, which is still in early adolescence, so the ability to control behavior and form healthy habits is still developing. In addition, respondents engaged in structured activities from 3:00 a.m. to 10:00 p.m. WIB, which included academic, religious, and dormitory activities. These busy activities can affect the regularity of rest periods and the implementation of healthy sleep habits. The dormitory environment, consisting of 12 rooms with 14 students in each room, results in quite high interaction between room occupants, which can affect the regularity of sleep periods and rest comfort. Other factors that can influence are psychological stress due to academic demands, religious activities, memorization targets, and high social interactions. These conditions can cause difficulty falling asleep, frequent nighttime awakenings, and interfere with the implementation of good sleep hygiene.

**Identification of Sleep Quality in Male Adolescents at MBS AL Amin Bojonegoro Middle School**

Table 4 shows that more than half of the respondents had poor sleep quality (32 respondents (56.1%), sufficient (21 respondents (36.8%), and only a small portion (4 respondents (7.0%) had good sleep quality). These findings indicate that sleep quality among male adolescents at MBS Al Amin Bojonegoro Middle School is still suboptimal. Sleep and rest are basic needs that must be met as part of self-care to maintain individual health and well-being. Poor sleep quality indicates that adolescents' rest needs are still not being met optimally.

Table 1 shows that a small proportion of respondents were 13 years old, namely 19 respondents (33.3%). This age is included in the early adolescence category. At this stage, adolescents are still experiencing physical, psychological, and social development that can affect their sleep patterns and sleep quality. Adolescents' ability to manage rest time and maintain regular sleep is also not yet optimally developed. Adolescents at this age tend to be more active in interacting with peers, which can cause later bedtimes and sleep needs are not properly met. Table 2 shows that more than half of the respondents were in grade 8, as many as 30 respondents (52.6%). Grade 8 students have a variety of busy formal and informal activities, which can affect the regularity of rest time and sleep quality.

The results of this study are in line with the research of Hasianna et al. (2025) which showed that the majority of respondents with poor sleep hygiene behavior experienced poor sleep quality, namely 84.1%. The results of this study are in line with the research of Hasianna et al., (2025) which showed that the majority of respondents with poor sleep hygiene behavior experienced poor sleep quality, namely 84.1%. According to Meri Agritubella et al., (2024), sleep quality is a condition that indicates a person's ability to obtain adequate sleep and rest according to their needs. Sleep quality is influenced by various aspects, such as subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, and disruption of daytime activities (Manoppo et al., 2023). In addition, sleep quality is also influenced by environmental conditions, physical activity, emotional stress, stimulant use, and a person's health condition. An uncomfortable sleeping environment, such as a noisy atmosphere, inappropriate lighting, and uncomfortable room temperature can make it difficult for someone to fall asleep and wake up easily at night (Jumilia, 2020). Busy activities and emotional stress can also affect sleep patterns, reducing rest time (Harisa et al., 2022). Therefore, sleep quality is influenced by various interrelated physical, psychological, and environmental factors. A person with good sleep quality generally feels refreshed and able to carry out daily activities optimally, while poor sleep quality can lead to fatigue, daytime drowsiness, and difficulty concentrating.

According to researchers, the high proportion of poor sleep quality (56.1%) indicates that adolescents' sleep and rest needs have not been optimally met as part of self-care. Individuals have a responsibility to meet their basic health needs through self-care measures. If adolescents' ability to manage rest time and implement healthy sleep habits is not optimal, then sleep needs may not be met, resulting in poor sleep quality. This condition may be influenced by the respondents' age, which is still in early adolescence, so the ability to regulate rest patterns and maintain healthy habits is still developing. In addition, respondents undergo structured activities from 3:00 a.m. to 10:00 p.m. WIB,

which includes academic, religious, and dormitory activities. These busy activities can affect adolescents' rest time. The dormitory environment, which consists of 12 rooms with 14 students in each room, also causes a lot of interaction between room occupants, which can affect comfort and regular sleep times. Psychological stress factors due to academic demands, religious activities, memorization targets, and social interactions can also affect adolescents' sleep quality. These conditions cause sleep and rest needs not to be optimally met, resulting in the sleep quality of most respondents being in the poor category.

**Analysis of the Relationship between Sleep Hygiene Behavior and Sleep Quality in Male Adolescents at MBS AL Amin Bojonegoro Middle School**

The results of the research conducted by researchers show that 57 (100%) male adolescents at MBS Al Amin Bojonegoro Middle School can be seen that respondents with good sleep hygiene all have good sleep quality, namely 4 respondents (100%). Meanwhile, respondents with sufficient sleep hygiene, the majority have sufficient sleep quality, namely 21 respondents (91.3%), while a small portion have poor sleep quality, namely 2 respondents (8.6%). In addition, respondents with poor sleep hygiene, the majority have poor sleep quality, namely 30 respondents (100%). The data analysis of this study used the Spearman correlation test with a significant level = <0.05 and the calculation was carried out using the SPSS software application version 25 for Windows, the results of the Asmp Sig. (2-tailed) value were obtained = 0.000, which means the smaller the p-value, the more significant the results of the study p = (0.000 <0.05) and the correlation coefficient value obtained r = 0.769, which means the coefficient value is strong, so H1 is accepted. This shows that there is a relationship between sleep hygiene behavior and sleep quality in male adolescents at MBS Al Amin Bojonegoro Middle School.

This finding aligns with research by Rini & Tamar (2023) which concluded that sleep hygiene significantly impacts sleep quality in school-aged adolescents (p<0.05), indicating a relationship between the two variables. Their study found that 16 (53.3%) respondents had poor sleep hygiene and 18 (60%) respondents had poor sleep quality. Furthermore, research by Ayuningdyah et al. (2024) found that adolescents with poor sleep hygiene had a higher risk of experiencing poor sleep quality. Every individual has a responsibility to practice self-care to maintain health and well-being. One form of self-care in adolescents is maintaining healthy sleep habits through the implementation of sleep hygiene. Good sleep hygiene behaviors help individuals meet their sleep and rest needs optimally, while poor sleep hygiene behaviors can lead to unmet sleep needs, resulting in decreased sleep quality.

Sleep hygiene is a series of habits and behaviors carried out to help a person achieve effective sleep and meet normal sleep needs (Saparwati & Lestari, 2023). Components of sleep hygiene include a sleep-wake schedule, sleep environment, diet, and pre-bedtime habits (Amir, 2007). Implementing good sleep hygiene, such as sleeping and waking regularly, creating a comfortable sleep environment, and avoiding activities that can disrupt sleep before rest time, can help a person achieve a regular sleep pattern. Conversely, poor sleep hygiene can cause disruptions in the process of initiating sleep, reduced sleep time, and increased frequency of nighttime awakenings. According to Meri Agritubella et al., (2024), sleep quality is a condition that indicates a person's ability to obtain adequate sleep and rest according to their needs. Sleep quality is influenced by several aspects such as sleep latency, sleep duration, sleep efficiency, sleep disturbances, and daytime activities (Manoppo et al., 2023). In addition, an uncomfortable sleep environment and busy activities can also affect a person's sleep quality (Jumilia, 2020). Emotional stress and excessive activity can make it difficult for someone to fall asleep, resulting in reduced rest time (Harisa et al., 2022). Based on this theory, irregular sleep habits, an unfavorable sleep environment, and excessive pre-bedtime activities can affect the sleep process and lead to less than optimal sleep quality.

The strong relationship between sleep hygiene and sleep quality indicates that adolescent self-care behaviors play a role in meeting sleep and rest needs. Every individual has the ability to perform self-care to meet their health needs. One form of self-care in adolescents is the implementation of good sleep hygiene. Sleep hygiene is a self-care action carried out to meet sleep and rest needs. Adolescents

who are able to practice good sleep hygiene tend to have better sleep quality because their rest needs are optimally met. Conversely, adolescents who are less able to practice sleep hygiene tend to experience poor sleep quality due to unmet rest needs. In addition, the dense formal and informal activities of the boarding school, the many interactions between dormitory residents, and psychological stress from academic demands and religious activities, as well as memorization targets, can also influence adolescent self-care behaviors in maintaining sleep needs, thus impacting sleep quality.

## CONCLUSION

This study shows that more than half of male adolescents at MBS Al Amin Bojonegoro Middle School have sleep hygiene behaviors in the poor category (52.6%) and sleep quality in the poor category (56.1%). The results of the Spearman test analysis showed a significant relationship between sleep hygiene behaviors and sleep quality ($p = 0.000$) with a strong relationship strength ($r = 0.769$). This finding indicates that the better the sleep hygiene behaviors implemented, the better the sleep quality of adolescents. The results of this study strengthen the concept of Dorothea E. Orem's Self-Care Deficit that the implementation of sleep hygiene is a form of self-care that plays a role in meeting the basic needs of sleep and rest so that it can support adolescent health. Practically, the results of this study can be a basis for schools and Islamic boarding school managers to improve education, guidance, and supervision of the implementation of healthy sleep habits as an effort to improve student sleep quality.

This study has limitations because it was conducted at a single location with a limited number of respondents and used a cross-sectional design, so the relationships obtained cannot explain causality. Furthermore, data measurement was conducted using a questionnaire, so respondents' answers depended heavily on their honesty and individual perceptions. Therefore, further research is recommended involving a larger number of respondents in a wider range of locations, using a longitudinal design or intervention method, and considering other factors that may influence sleep quality. This will provide a more comprehensive picture of efforts to improve sleep hygiene behavior and sleep quality in adolescents.

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