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# *THE RELATIONSHIP BETWEEN SMARTPHONE USE INTENSITY AND SLEEP QUALITY IN ADOLESCENTS IN GRADES X AND XI AT STATE SENIOR HIGH SCHOOL 1 KRAMATWATU*

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## ABSTRACT

**Background:** Adolescence is a transitional period from childhood to adulthood, beginning at the onset of puberty and continuing until maturity is reached. The use of smartphones can have both positive and negative impacts on teenagers. On the positive side, teenagers have access to resources for learning, the ability to communicate remotely, and the opportunity to learn online. On the other hand, they may experience a decrease in physical activity, which can lead to laziness in studying, eye strain, and disturbances in sleep quality. **Objective:** This study aims to determine the relationship between smartphone usage intensity and sleep quality among 10th and 11th grade students at SMAN 1 Kramatwatu. **Method:** This research employs a quantitative study design with a cross-sectional approach involving 261 respondents from SMAN 1 Kramatwatu. There are a total of 592 students in 10th and 11th grades, with 300 students in 10th grade and 292 students in 11th grade. The sampling method used is probability sampling, specifically simple random sampling. Respondents from each class were selected using the Stratified Random Sampling formula. Data were analyzed using the chi-square statistical test. **Result:** The univariate analysis revealed that the majority of respondents were in mid-adolescence, totaling 233 respondents (85.4%). Based on gender, most respondents were male, totaling 177 respondents (67.8%). The chi-square test analysis indicated a statistically significant relationship between smartphone usage intensity and sleep quality among adolescents, with a P value of 0.000. **Conclusion:** There is a significant relationship between smartphone usage intensity and sleep quality among adolescents.
**Keywords: "**Smartphone usage intensity", "sleep quality in adolescents", "Teenager"

## INTRODUCTION

Adolescence is a transitional period from childhood to adulthood, spanning from the onset of puberty to adulthood. According to Octavia (2020), adolescents are individuals experiencing development as they begin to show secondary sexual characteristics and reach sexual maturity, transitioning from complete socioeconomic dependence on their environment to greater independence. According to a 2023 survey, the number of adolescents by age group (15-19 years) was 22,134.4, with 11,419.7 males and 10,714.6 females. Adolescent health tends to be more complex than other age groups. According to a sleep survey conducted by the National Sleep Foundation (2023) in the United States, women experience more sleep disturbances than men, with a ratio of 63% to 54%. This is thought to be because women are more susceptible to fatigue during puberty (National Sleep Foundation, 2007 in Angelita, 2023). According to Putri (2018 in Angelita 2023), lifestyle changes are one of the many causes of sleep disorders in adolescents, one of which is the use of smartphones.

According to Saputra (2016 in Pratama, 2023), most teenagers use smartphones to access social media. WhatsApp and Instagram are the most widely used social media platforms. A smartphone is a technological device or product in the form of a mobile phone with advantages such as smarter software and hardware specifications, more intelligent functions, and more advanced features than previous versions of standard mobile phones (Saputra, 2016 in Pratama, 2023).

Teenagers use smartphones to access social media, spending more than 4 hours and 17 minutes per day, 5 hours per day, or 12 hours per day (Supartini, et al., 2021). Excessive gadget use is called gadget addiction, which is a disturbance in the desire or urge to use gadgets and an individual's inability to control how long they use them, leading to feelings of anxiety and impaired social relationships (Pratiwi & Pautina, 2022).

The excessive use of Smartphones by adolescents causes health problems, one of which is sleep quality (Hidayat & Mustikasari, in Rakhman, et al. 2023). Sleep quality is when a person feels satisfied with their sleep so that they do not feel tired, irritable, restless, lethargic, or apathetic. Increased levels of stress, anxiety, and decreased concentration in performing activities will occur if sleep needs are not met (Potter & Perry, in Rakhman, et al. 2023). According to the National Sleep Foundation (2023), adolescents need about 8-10 hours of sleep every day; a healthy sleep requirement for adolescents will result in better rest. However, according to WHO, in 2019, as many as 60% of adolescents worldwide experienced sleep disorders, including insomnia, sleep disruption, and poor sleep quality. Adolescent sleep differs from other age groups due to changes occurring at the end of puberty, which often lead to shorter sleep times. Adolescents often feel excessively sleepy during the day because they sleep late at night and wake up earlier for school purposes (Potter & Perry, 2005 in Angelita, 2023).

Unmet sleep needs in adolescents result in decreased memory and decreased concentration. This is supported by research conducted by Damaiyanti, et al. (2023) with the result that there is a relationship between Smartphone use and the quantity of sleep in adolescents. The prevalence of internet use in Indonesia increased during the 2023-2024 period. In 2024, it was 79.5% of the total population, or about 221.56 million people. This number increased by 2.67% compared to the previous year. This survey was conducted by the Indonesian Internet Service Providers Association (APJII).

Internet Use Data and Trends Regarding BPS (Statistics Indonesia) data related to internet use in Indonesia, in 2022, 66.48% of the Indonesian population had accessed the internet. The majority of internet users in Indonesia come from the productive or working age group, which is 25-49 years old, and 98.70% of children aged 5 years and over access the internet using smartphones.

Based on research conducted on 2,933 adolescents in 33 provinces, 59% experienced an increase in daily online activity (Rossa & Varwati, in Nurannisa, et al. 2023). China is the country with the most smartphone users, with 783 million people, or 55% of the country's total population, according to Worldometers data as of July 16, 2023. Indonesia is among the top ten smartphone users (Herdayanto in Septianingrum, 2020). According to (Data reportal 2023), Smartphone use in Indonesia continues to increase, with 89% of the population or about 167 million people having used a smartphone in 2023. When viewed based on the purpose of accessing the internet, it can be seen that the use of social media and obtaining information are dominated with percentages of 73.7% and 79.5%, respectively (BPS-Statistik 2022).

Implications and The Role of Nurses Based on the above data and the perception of the pleasurable facilities offered by smartphones, adolescents may be inclined to use these facilities regularly. Consequently, the time spent playing on social media increases and interferes with various activities. Nurses have an important role as educators for adolescents in various aspects of health. One such role is to provide accurate information about physical, mental, and emotional health, including the importance of sleep, nutrition, and physical activity.

Relevant Research Findings Consistent with the research results of Ibrahim, et al. (2022), this study found a relationship between attitudes toward smartphone use and sleep quality in students. The research results of Ulfa Rahma, et al. (2021) showed a relationship between smartphone use and sleep quality in adolescents. The research results of Siallagan Ance, et al. (2022) found a relationship between social media use and sleep quality in adolescents. The research results of Rakhman Arif, et al. (2023) showed a relationship between the duration of smartphone use and adolescent sleep quality.

However, the research results of Nurannisa, et al. (2023) showed no significant relationship between the intensity of smartphone use and sleep quality, with a very weak correlation strength and a positive direction of the relationship. The research results of Kurniasari Evi, et al. (2022) indicated that there was no significant and positive correlation between smartphone use scores and the scores for quality and quantity of sleep in adolescents in Arolipu Village.

## MATERIALS AND METHODS

The type of this research used a quantitative research method. The study was designed as cross-sectional, meaning the researchers conducted observations and measurements of variables during a specific period of time. The population in the study was 592 students, and the sample size was 264 respondents using random sampling and stratified random sampling techniques. The research was conducted at SMAN 1 Kramatwatu

with the research time being February to March 2025. The data collection technique employed primary data by directly distributing questionnaires to the respondents.

## RESULTS AND DISCUSSION

**Table 1.** The Relationship between Smartphone Use Intensity and Sleep Quality in 10th and 11th Grade Adolescents at SMAN 1 Kramatwatu (n=261)

| Intensity of Smartphone Use | Kualitas Tidur | | | | Total | | P *Value* |
|---|---|---|---|---|---|---|---|
| | Undisturbed | | Disturbed | | | | |
| | N | % | N | % | N | % | |
| High | 0 | 0 | 3 | 1,3 | 3 | 1,14 | 0,000 |
| Medium | 3 | 9,7 | 227 | 98,7 | 230 | 88,12 | |
| Low | 28 | 90,3 | 0 | 0 | 28 | 10,72 | |
| **Total** | 31 | 11,8 | 230 | 88,1 | 261 | 100 | |

Based on the table, it shows that there is a relationship between the level of smartphone use intensity and sleep quality among students at SMAN 1 Kramatwatu.

## DISCUSSION

This research used the chi-square test. The results of the statistical test obtained a P-Value of 0.000. This indicates that there is a relationship between the level of smartphone use intensity and sleep quality among students at SMAN 1 Kramatwatu. The research shows that the higher the intensity of smartphone use, the worse the sleep quality experienced by adolescents (Nurdilla, 2018). Excessive use of smartphones by adolescents can have negative effects on their mental, social, academic, and physical health (Septianingrum, 2020).

Sufficient sleep is necessary for the recovery of the body and brain. During sleep, the body performs cell regeneration, tissue repair, and hormone regulation. Sleep deprivation reduces the time available for these processes, which can lead to fatigue, decreased concentration, and other health problems. A person's feeling of fatigue can also affect their sleep quality. People who are moderately tired can sleep soundly, but those who are overly exhausted will have shorter periods of REM sleep (Putriningtyas, et al. 2023).

This is supported by research conducted by Pratama Putri Wilda Y (2023), which showed a p-value of 0.019 among adolescents at SMPN 37 Bekasi City, indicating a relationship between smartphone use intensity and sleep quality. Adolescents continue to use smartphones right before sleeping, which leads to poor sleep quality.

This is also consistent with Angelita (2023), which showed that at the addiction level of smartphone use, 1 respondent (3.2%) was at risk for good sleep quality and 31 respondents (96.8%) for poor sleep quality. Based on the research results, it was stated that there is a relationship between the level of smartphone addiction and sleep quality in adolescents. This occurs because adolescents often sleep late at night and wake up earlier for school, resulting in adolescents frequently being excessively sleepy during the day (Angelita, 2023).

Furthermore, the research results of Rakhman, Arif, et al. (2023) showed a relationship between the duration of smartphone use and adolescent sleep quality, with a correlation coefficient of 0.184 (very weak) and a p-value of -0.08. This is attributed to adolescents being given more freedom regarding smartphone use at this age.

## CONCLUSION

Based on the results of research that has been conducted on the Relationship between the Intensity of Smartphone Use and Sleep Quality in Adolescents in Grades X and XI at SMAN 1 Kramatwatu, it shows that the level of intensity of Smartphone use is moderate with sleep quality disturbances of 228 respondents (99.1%) and respondents with no sleep quality disturbances of 2 respondents (0.9%), at the low level of intensity of Smartphone use with no sleep quality disturbances of 28 respondents (100%) and respondents with sleep quality disturbances of 0 respondents (0%), while the level of intensity of Smartphone use is high with sleep quality disturbances of 3 respondents (100%) and respondents with no sleep quality disturbances of 0 respondents (0%), the results of statistical tests obtained P Value 0.000 smaller than α (0.05) indicating that there is a relationship between the level of intensity of Smartphone use and sleep quality in students of SMAN 1 Kramatwatu.

## REFERENCES

Alfarendra, F., & Purwoko, B. (2020). Konseling Individu Teknik Bibliotherapy Untuk Meningkatkan Self

Esteem Pada Peserta Didik Kelas VIII SMPN 1 Maduran Lamongan KONSELING INDIVIDU TEKNIK BIBLIOTHERAPY UNTUK MENINGKATKAN SELF ESTEEM PADA PESERTA DIDIK KELAS VIII SMPN 1 MADURAN LAMONGAN Febri. *Jurnal BK Unesa*, *11*(2).

Aliah, dkk. (2023). Metode Biblioterapi dalam Meningkatkan Kesehatan Mental. *Jurnal Ilmiah Multidisiplin*, *1*(10), 699–706.

Center for Reproductive Health, University of Queensland, & J. B. H. S. of, & Public Health. (2022). *Indonesia – National Adolescent Mental Health Survey (I-NAMHS): Laporan Penelitian*. https://qcmhr.org/outputs/reports/12-i-namhs-report-bahasa-indonesia

Erford, T. B. (2016). *40 Teknik yang Harus Diketahui Setiap Konselor*. Pustaka Pelajar.

Gumber, N. (2021). Bibliotherapy as a Tool of Education in Classroom. *International Journal of Indian Psychology*, *9*(2). https://doi.org/10.25215/0902.094

Hasfera, D. (2018). Bibliotheraphy: Layanan Bimbingan Konseling Di Perpustakaan. *Shaut Al-Maktabah Jurnal Perpustakaan, Arsip Dan Dokumentasi*, *10*(1), 39–62. https://doi.org/10.15548/shaut.v10i1.3

Kemenkes. (2023). *Definisi Gangguan Jiwa dan Jenis-jenisnya*. Ditjen Yankes, Kemenkes. https://yankes.kemkes.go.id/view_artikel/2224/definisi-gangguan-jiwadan-jenis-jenisnya

Lee, S. Y., & Jung, H. Y. (2022). Effects of a Self-Esteem Enhancement Program on Adolescents' Psychological Well-being and School Adjustment. *Child Health Nursing Research*, *28*(1), 45–53.

Modjo Dewi, Muriyati R., R. T. (2024). PENGARUH BIBLIOTHERAPY TERHADAP KONSEP DIRI PADA ANAK USIA SEKOLAH DI SD NEGERI 01 TELAGA BIRU. *MANUJU: MALAHAYATI NURSING JOURNAL*, *6*(12), 5061–5073.

Noor, T. R. (2021). Bibliotherapy Sebagai Upaya Meningkatkan Keterampilan Interpersonal Remaja. *Jurnal Studia Insania*, *8*(2), 164. https://doi.org/10.18592/jsi.v8i2.3974

Redman, H., Melendez-Torres, G. J., Bethel, A., & Green, J. (2024). The impact of school-based creative bibliotherapy interventions on child and adolescent mental health: a systematic review and realist synthesis protocol. *Systematic Reviews*, *13*(1), 1–9. https://doi.org/10.1186/s13643-024-02482-8

Rohmah, S. A., & Oktara, T. W. (2023). Konseling Kognitif Menggunakan Teknik Biblioterapi Untuk Mengatasi Rasa Rendah Diri Pada Remaja di LKSA. *Yakenas Madani Serang. Al-Shifa: Jurnal Bimbingan Konseling Islam*, *4*(1), 37–42. http:/dx.doi.org/10.32678/alshifa.v4i1.7843URL:https://jurnal.uinbanten.ac.id/index.php/alshifa

Sari, Ulvita, dkk. (2024). Penerapan Aktivitas Menggambar dan Merias Diri Terhadap Tanda dan Gejala Pasien Harga Diri Rendah. *Jurnal Cendekia Muda*, *4*(3), 464–470.

Tim Pokja SIKI DPP PPNI. (2018). *Standar Intervensi Keperawatan Indonesia*. Dewan Pengurus Pusat PPNI.

WHO. (2023). *Adolescent Health*. World Health Organization. https://www.who.int/health-topics/adolescent-health#tab=tab_1

WHO. (2024). *Mental Health of Adolescent*. https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health#:~:text=Globally%2C one in seven 10,illness and disability among adolescents.