



## African Journal of Biological Sciences



### Problems of Sleep Quality in Adolescents at Senior High School

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#### ABSTRACT

**Background:** Coronavirus disease 2019 (coronavirus disease/COVID-19) is a new name given by the World Health Organization (WHO) to patients with a 2019 Novel Coronavirus infection which was first reported from Wuhan City, China at the end of 2019 where the spread occurred rapidly. and create new pandemic threats (Handayani et al., 2019). One of the most predictive factors of acute stress disorder symptoms is quarantine. The negative psychological effects are symptoms of post-traumatic stress, confusion, and anger due to the longer duration of quarantine stress leading to fear of infection, frustration, inadequate supplies, information stigma, and financial loss (Brooks et al, 2020). One of them is sleep, adequate sleep can increase the hormone melatonin, reduce anxiety, and stimulate a good immune system.

**Purpose of study:** To find out whether there is a relationship between the impact of the COVID-19 pandemic and the quality of sleep in adolescents at senior high school.

**Method:** This research is a quantitative research using a cross-sectional approach. The sample in this study were teenagers who were still in school at Senior High School Samarinda totaling 153 respondents who met the criteria, the sample was taken using a total sampling technique. The instrument used in this study was a questionnaire. **Results:** The results of the study used the Pearson product-moment with the results of the Pearson correlation of 0.433 and the P value = 0.000 <0.05. With these results, it can be shown that there is a moderate relationship with a negative relationship, which means that the higher the impact of the COVID-19 pandemic, the lower the sleep quality of adolescents. **Conclusion:** There is a relationship between the impact of the COVID-19 pandemic with sleep quality in adolescents at senior high school.

**Keywords:** COVID-19, sleep quality, adolescent, senior high school

## 1. INTRODUCTION

Coronavirus disease 2019 (*coronavirus disease* / COVID-19) is a new name given by the *World Health Organization* (WHO) for patients with Coronavirus infection 2019 which was first reported from Wuhan City, China at the end of 2019 when the spread occurred rapidly and created a new pandemic threat (Handayani et al., 2019). *Coronavirus Disease 2019* (COVID-19) is a new strain that has never been identified before in humans. The source of transmission of the COVID-19 virus called *Sars-CoV-2* is still unknown which animal is the cause.

Because the transmission rate is quite high and if a person is diagnosed with COVID-19, self-quarantine is recommended for that individual. The purpose of this quarantine is that the individual has no physical contact at all with other people. Quarantine is an unpleasant experience for anyone who experiences it. Separation from loved ones, loss of freedom, the uncertainty of illness status, and boredom can result in dramatic effects severe stress, and even suicide (Brooks et al, 2020).

One of the most predictive factors of acute stress disorder symptoms is quarantine. The negative psychological effects in the form of symptoms of post-traumatic stress, confusion, and anger due to the longer duration of quarantine pressure cause fear of infection, frustration, inadequate supplies, information stigma, and financial losses (Brooks et al, 2020). One of them is sleep, adequate sleep can increase the hormone melatonin and produce can reduce anxiety, and stimulate a good immune system. However, most people when experiencing stress will find it difficult to sleep regularly at the time they should, which is why children who are positive for COVID-19 recover faster because children often feel happy, and adequate sleep makes immune production good (He et al, 2020).

## 2. METHODOLOGISTS

This study used quantitative methods with a *cross-sectional* approach. This data collection used a questionnaire through *Google form* media conducted on 153 students at Senior High School with data collection using total sampling. This study used univariate and bivariate analysis which was processed using the *Statistical Package for the Social Sciences* (SPSS) program.

## 3. RESULT

### 3.1 Characteristics of Respondents

**Table 1: Respondent Characteristics**

No	Characteristics of Respondents	Frequency	Percentage
<b>1.</b>	<b>Age</b>		
	15 Years	1	7%
	16 Years	39	25,5%
	17 Years	103	67,3%
	18 Years	8	5,2%
	19 Years	2	1,3%
	<b>Total</b>	<b>153</b>	<b>100%</b>
<b>2.</b>	<b>Gender</b>		
	Man	69	45,1%
	Woman	84	54,9%
	<b>Total</b>	<b>153</b>	<b>100%</b>
<b>3.</b>	<b>Class</b>		
	MIPA	82	53,6%

IPS	71	46,4%
<b>Total</b>	<b>153</b>	<b>100%</b>

Based on the table above, respondents were 15 years old (7%), 16 years old (25.5%), 17 years old (67.3%), and 18 years old (5.2%). Age 19 years (1.3%) Based on the data in the table above, it was found that the majority of respondents were 17 years old, namely as many as (67.3%). This is in line with Prasetyo regarding the vulnerability of adolescents who experience poor sleep quality at the age of 17 years as many as 54.2% where 17-year-olds are sensitive to the surrounding environment, as well as conditions in 2021 during the Covid-19 pandemic, which affect adolescent productivity and sleep hours.

Based on gender, the table found that the majority of respondents Senior High School students were female (54.9%), while respondents were male only (45.1%). In the research of Sonda et al, it was found that the prevalence of students with the sex who had poor sleep quality in women was worse in women. The amount of poor sleep quality in women is more caused by estrogen and progesterone hormone levels that decrease during the menstrual cycle. The hormone estrogen is associated with increasing the total number of hours of sleep and can decrease sleep latency and falling levels of the hormone progesterone in the premenstrual period affecting difficulty falling asleep and increasing the frequency of waking up in the morning.

### 3.2 Analisa Univariante

Table 2. Impact of COVID-19 on Adolescents at Senior High School

	Mean	Median	Standard Deviation	Standard Error	CI.95%	
					Lower	Upper
Impact of Covid 19	35	34	7	548	33,66	35,82

Based on Table 2, it was found that most respondents experienced the impact of the COVID-19 pandemic with an average value of 35, which means that the COVID-19 pandemic had an impact on respondents by 33.66%-35.82%. The many changes in student life during the COVID-19 pandemic have had an impact on the low quality of student sleep. During online learning, students are required to use electronic equipment as a learning medium. Coupled with the tendency of *sedentary behavior* during online learning is a factor that greatly influences the irregularity of the body's circadian rhythm. This has led to an increase in the incidence of insomnia which has an impact on the poor sleep quality of students (Saad et al., 2021).

Table 3. Sleep Quality of Adolescence at Senior High School

	Mean	Median	Standard Deviation	Standard Error	CI.95%	
					Lower	Upper
Sleep Quality	20	20	8,25	667	18,37	21,01

Based on Table 3 above, it was found that most respondents experienced poor sleep quality with an average score of 20 which means that poor sleep quality in Senior High School Samarinda students was 18.37%-21.01%. Changes in the learning system that was originally from offline to online may facilitate the learning process from home. However, during the learning process, students are required not to move much and are exposed to direct light or radiation from laptop screens or *gadgets* that have a bad effect on student health. Blue light from laptops, *smartphones*, and tablets, suppresses or inhibits the release of melatonin in the body which results in increased night wakefulness, sleep latency, and REM sleep time (Khare et al., 2021; Mortazavi et al., 2018).

### 3.3 Analisa Bivariate

Table 4. Impact of the COVID-19 pandemic and Sleep Quality in Adolescents at Senior High School

Impact of Covid-19	Sleep Quality	CI.95%		Pearson Correlation	Sig.(2-tailed)	N
1	1	Lower -,577	Upper -,291	-,433	,000	153

Based on the results of the statistical test above using the *Pearson product Moment formula*, it was found that the relationship between the impact of the COVID-19 pandemic and sleep quality was a moderate relationship with a correlation value of 0.433. The direction of the relationship is negative, which means that the lower the impact of COVID-19, the higher the quality of sleep. Quite a lot of changes in student life during the pandemic have had an impact on the low quality of student sleep. During online learning, students are required to use electronic equipment as a learning medium. Coupled with the tendency of sedentary behavior during online learning is a factor that greatly influences the irregularity of the body's circadian rhythm. This increases the incidence of insomnia, impacting students' poor sleep quality (Saad et al., 2021).

## 4. CONCLUSION

Based on the characteristics of respondents, it was found that the majority of respondents were 17-year-old students totaling 103 (67.3%), most of them were also female as many as 84 (54.9%), and the majority of respondents as many as 82 (53.6%) students. The results of the study on the independent variables of the impact of the COVID-19 pandemic found that the results showed that most adolescents in Senior High School experienced the impact of the COVID-19 pandemic with an average value of 35 and a reliable trust value that the COVID-19 pandemic had an impact on respondents by 33.66%-35.82%. Meanwhile, on the dependent variable of sleep quality in adolescents at Senior High School, the results of the study also showed that most adolescents at Senior High School experienced poor sleep quality with an average value of 20 and a reliable belief value that adolescents experienced poor sleep quality

with a confidence value of 18.37%-21.01%. Statistical test results using *Pearson product-moment* A significant value of  $0.000 < 0.05$  was obtained and based on a correlation value of 0.433, it can be concluded that there is a relationship between the impact of the COVID-19 pandemic and sleep quality in adolescents in Senior High School with moderate relationship strength. And the trust value from -57 to -29 which is believed to be a relationship shows negative which means that the higher the impact of the COVID-19 pandemic, the lower the quality of sleep in adolescents.

## ACKNOWLEDGMENTS

The researcher conveyed to UMKT, the School that has been permitted to access student data, and all respondents who have been willing to provide their data. Greetings success and a healthy soul always.

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