

# The Relationship between Stress Levels and Insomnia Levels in Students of the Faculty of Medicine, Indonesian Muslim University

Nurfachanti Fattah<sup>1</sup>, Zulfamidah<sup>1\*</sup>, Sobria Munawara<sup>1</sup>, Erlin Syahril<sup>1</sup>, Arni Isnaini Arfah<sup>1</sup>

<sup>1</sup> Program Pendidikan Dokter, Fakultas Kedokteran, Universitas Muslim Indonesia

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**Abstract:** The incidence of stress continues to increase over time, students in their activities cannot be separated from stress. If someone feels anxiety, and anxiety is more likely to cause sleep disturbances, the most common sleep disorder among students is insomnia. This research aimed to determine the relationship between stress levels and insomnia levels in medical students class 2018, 2019, and 2020 Indonesian Muslim universities. This study is a descriptive analytic study with a cross-sectional design. Samples were taken by total sampling. Data were collected using the Depression Anxiety Stress Scale (DASS) questionnaire and the Jakarta Biological Psychiatry Study Group questionnaire- Insomnia Rating Scale (KSPBJ-IRS). This research took place in December 2021-January 2022. Based on result from 527 respondents there were 254 or 42.8% normal people (not stressed), 69 or 12.1% mild stress, 112 or 19.6% moderate stress, 66 or 11.5% severe stress, and 80 or 14,0% experienced severe stress. As for insomnia, 161 or 28.1% of respondents had no complaints of insomnia, 257 or 44.9% had mild insomnia, 134 or 23.4% had moderate insomnia, 20 or 3.5% of respondents had severe insomnia. From the results of the correlation test, it was found that a strong positive relationship was indicated by a significant value of  $p < 0.000$  and  $r = 0.706$ , because the  $p$  value was  $< 0.005$  and the  $r$  value was positive and located between 0.60-0.799. There is a significant relationship between stress levels and insomnia levels in students of the Faculty of Medicine, Class of 2018, 2019, and 2020, Universitas Muslim Indonesia

**Keywords:** Insomnia, Stress, Medical Faculty Student.

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## Introduction

According to survey results from 14 countries, stress is the second-order fourth-largest health problem in the world and has a negative social impact. In 2014, the prevalence of stress in Indonesia was estimated to be between 17 and 27%. The world's annual prevalence of stress (depression) is estimated to be 5-10%, and the lifetime prevalence can be twice that (Legiran et al., 2015; Hadianto et al., 2014).

According to findings from basic health research conducted in 2013, as much as 0.26% of people in South Sulawesi experience depression (Riset Kesehatan Dasar, 2013). According to the World Health Organization's (WHO) most recent statistics from 2017, more than 300

million individuals worldwide today experience stress, a rise of 18% from 2005 to 2015. In 2020, behind ischemic heart disease, stress is expected to have the second-highest worldwide illness burden.

Students experience stress in all of their activities, which is brought on by both internal and external influences. Assignments for college, parental expectations for their children's academic achievement, and requests for college tuition are all examples of external forces.

Internal impacts, meanwhile, come from students' capacity to attend lectures (Gamayanti et al., 2018). Stress can have a negative impact on a person's ability to fall asleep or stay asleep through a variety of causes, including an increase in the chemicals adrenaline,

Email: [zulfamidah@umi.ac.id](mailto:zulfamidah@umi.ac.id)

cortisol, and norepinephrine, which drive sympathetic nerve activity (Sherwood, 2012). Insomnia is a condition that makes it difficult for a person to get the quality and quantity of sleep they require. People who frequently wake up during the night, have trouble going asleep, or only have short, non-restorative naps are said to have insomnia. Patients with insomnia feel excessive daytime tiredness due to inadequate sleep duration and quality (Giyarto, 2018).

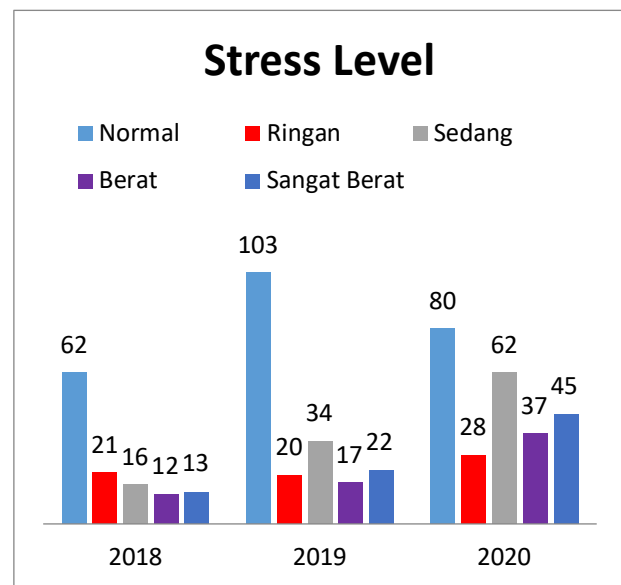
According to the findings of a study carried out in North Sumatra in 2016, medical students at the University of North Sumatra reported mild stress as much as 57% of the time (Fawzy & Hamed, 2017). His research revealed that up to 53% of the medical students at the University of North Sumatra were of poor quality (Fawzy & Hamed, 2017). Meanwhile, Murut's study discovered that in 2014, students at Jenderal Soedirman University's Faculty of Medicine and Health Sciences had moderate stress levels (31 samples, 59.6%) and sleeplessness (30 samples, 57.7%) (S. D. Putri, 2016).

The researcher aimed to determine whether there was a connection between stress levels and insomnia levels in medical students based on the context and findings of the earlier research stated above.

**Materials and Methods**

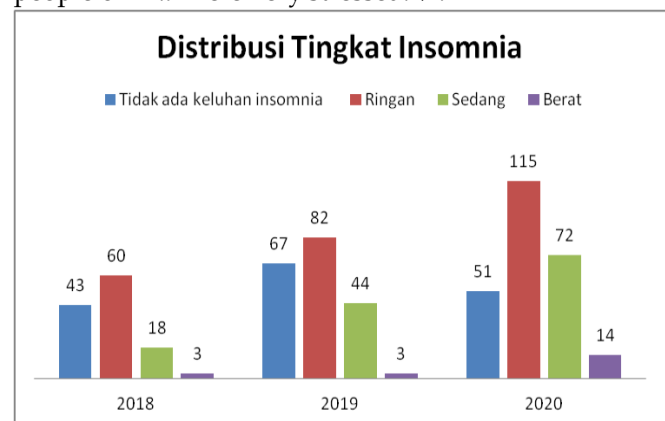
This study has a cross-sectional design and is an analytical descriptive investigation. Total sampling was used to collect samples. The DASS and KSPBJ-IRS questionnaires were utilized to obtain the data. From December 2021 to January 2022, the study was carried out in the Faculty of Medicine, Indonesian Muslim University. The sampling approach utilised was total sampling, in which the number of samples is equal to the population. The sample comprised members of the Indonesian Muslim University's Faculty of Medicine's 2018, 2019, and 2020 Classes. There were 572 samples total that were used as inclusion criteria. The Depression Anxiety Stress Scale (DASS) and the Jakarta Biological Psychiatry Investigation Group - Insomnia Rating Scale (KSPBJ-IRS) questionnaires were both employed in this investigation.

**Result and Discussion**



**Figure 1.** Stress Level Distribution

Based on Figure 1, shows the frequency of students in each batch based on their stress level. It can be seen that for the class of 2018, the frequency of normal students was 62 people or 50.0%, 21 people or 16.9% mild stress, 16 people or 12.9% moderate stress, 12 people or 9.7% severe stress, and very stressed weight as much as 13 people or 10.5%. For the 2019 class, 103 people or 52.6%, did not experience (normal) stress, 20 people or 10.2%; mild stress, 34 people or 17.3%; moderate stress, 17 people or 8.7%; severe stress, 22 people or 11.2% very heavy stress. Meanwhile, in the 2020 class, 80 people or 31.7%, did not experience stress (normal), 28 people or 11.1%, had mild stress, 62 people or 24.6%, had moderate stress, 37 people or 14.7%, had severe stress, and 45 people or 17.9 were very stressed. %.



**Figure 2.** Insomnia Level Distribution

Based on Figure 2, shows the frequency of students in each generation based on their level of insomnia. It can be seen for class of 2018, the frequency of students who have no complaints of insomnia is 43 people or 34.7%, mild insomnia is 60 people or 48.4%, moderate insomnia is 18 people or 14.5%, and severe insomnia is 3 people or 2.4%. For the 2019 class, there were 67 people or 34.2%,

with no complaints of insomnia, 82 people or 41.8%, with mild insomnia, 44 people or 22.4%, with moderate insomnia; and 3 people with severe insomnia or 1.5%. Whereas in the 2020 class, there were 51 people or 20.2%, with no complaints of insomnia, 115 people or 45.6%, with mild insomnia, 72 people or 28.6%, with moderate insomnia, and 14 people with severe insomnia or 5.6%.

**Table 1.** The Relationship between Stress Levels and Student Insomnia Levels in 2018 Class

Angkatan	Stres	Insomnia				Jumlah	Nilai p	Nilai r	
		Tidak Insomnia	Ringan	Sedang	Berat				
2018	Normal	n	37	22	3	0	0,000	0,661	
		%	59,7	35,5%	4,8%	0,0%			62
	Ringan	n	4	15	2	0			21
		%	19,0	71,4%	9,5%	0,0%			100,0%
	Sedang	n	1	10	5	0			16
		%	6,3%	62,5%	31,3%	0,0%			100,0%
	Berat	n	1	8	2	1			12
		%	8,3%	66,7%	16,7%	8,3%			100,0%
	Sangat Berat	n	0	5	6	2			13
		%	0,0%	38,5%	46,2%	15,4%			100,0%

Based on Table 1, it can be concluded that there is a significant correlation between stress levels and levels of insomnia in class 2018 respondents, with the results of a strong positive relationship marked by a significant value of  $p < 0.000$  and  $r = 0.661$ , because the  $p$ -value  $< 0.005$  and the  $r$  value is positive and lies between 0.60 - 0.799.

**Table 2.** The Relationship between Stress Levels and Student Insomnia Levels in 2019 class

Angkatan	Stres	Insomnia				Jumlah	Nilai p	Nilai r	
		Tidak Insomnia	Ringan	Sedang	Berat				
2019	Normal	n	58	40	5	0	0,000	0,700	
		%	56,3	38,8%	4,9%	0,0%			103
	Ringan	n	3	11	6	0			20
		%	15,0%	55,0%	30,0%	0,0%			100,0%
	Sedang	n	4	21	9	0			34
		%	11,8%	61,8%	26,5%	0,0%			100,0%
	Berat	n	1	7	9	0			17
		%	5,9%	41,2%	52,9%	0,0%			100,0%
	Sangat Berat	n	1	3	15	3			22
		%	4,5%	13,6%	68,2%	13,6%			100,0%

Based on table 2, it can be concluded that there is a significant correlation between stress levels and levels of insomnia in class 2019 respondents with the results of a strong positive relationship marked by a significant value of  $p < 0.000$  and  $r = 0.700$ , because the  $p$  value  $< 0.005$  and the  $r$  value is positive and lies between 0.60 - 0.799.

**Table 3.** The Relationship between Stress Levels and Student Insomnia Levels in 2020 class

Angkatan	Stres	Insomnia				Jumlah	Nilai p	Nilai r	
		Tidak Insomnia	Ringan	Sedang	Berat				
2020	Normal	n	38	39	3	0	0,000	0,740	
		%	47,5%	48,8%	3,8%	0,0%			80
	Ringan	n	7	15	6	0			28
		%	25,0%	53,6%	21,4%	0,0%			100,0%
	Sedang	n	5	35	20	2			62
		%	8,1%	56,5%	32,3%	3,2%			100,0%
	Berat	n	1	16	18	2			37
		%	2,7%	43,2%	48,6%	5,4%			100,0%
	Sangat Berat	n	0	10	25	10			45
		%	0,0%	22,2%	55,6%	22,2%			100,0%

Based on Table 3, it can be concluded that there is a significant correlation between stress levels and insomnia levels in the 2020 class of respondents, with the results of a strong positive relationship marked by a significant value of  $p < 0.000$  and  $r = 0.740$ , because the  $p$ -value  $< 0.005$  and the  $r$  value is positive and lies between 0.60 - 0.799.

**Table 4.** The Relationship between Stress Levels and Student Insomnia Levels in 2018, 2019, 2020

Angkatan	Stres	Insomnia				Jumlah	Nilai p	Nilai r	
		Tidak Insomnia	Ringan	Sedang	Berat				
Keseluruhan	Normal	n	133	101	11	0	0,000	0,706	
		%	54,3%	41,2%	4,5%	0,0%			245
	Ringan	n	14	41	14	0			69
		%	20,3%	59,4%	20,3%	0,0%			100,0%
	Sedang	n	10	66	34	2			112
		%	8,9%	58,9%	30,4%	1,8%			100,0%
	Berat	n	3	31	29	3			66
		%	4,5%	47,0%	48,9%	4,5%			100,0%
	Sangat Berat	n	1	18	46	15			80
		%	1,3%	22,5%	57,5%	18,8%			100,0%

Based on Table 4, it can be concluded that there is a significant correlation between stress levels and insomnia levels in 2018, 2019, and 2020 classes of respondents with strong positive results marked by significant  $p$  values,  $< 0.000$  and  $r = 0.706$ , because  $p$  values  $< 0.005$  and  $r$  are positive lies between 0.60-0.799.

Based on research that has been conducted using the Spearman correlation test, it was found that there is a relationship between stress levels and insomnia levels in Medical Faculty Students Batch 2018, 2019 and 2020. It is explained that students who are not stressed (normal) have the possibility of not experiencing insomnia. Vice versa, the more stressed students are, the more likely they are to experience insomnia.

From the results of the relationship test above, it was found that there was a significant correlation between the level of stress and the level of insomnia, with the results obtained a strong positive relationship marked by a significant value of  $p < 0.000$  and  $r = 0.706$ , because

the value of  $p < 0.05$  and the value of  $r$  lies between 0.60-0.799.

This research is in line with research conducted by Rizkia Dwina in 2018 regarding the description of stress levels based on stressors in medical students in the professional study program at the Faculty of Medicine, Andalas University, which shows that the highest description of student stress levels is moderate stress, while the least is hefty stress (Rahmayani et al., 2019).

The results of this study are also in line with research conducted by Fitri Eka et al in 2017, which examined the relationship between stress levels and insomnia among medical students at Diponegoro University, where the results of this study show a significant correlation between stress levels and levels of insomnia (Wulandari et al., 2017).

This study also found that most students experienced moderate stress, namely as many as 112 respondents or 19.6% and mild insomnia, as many as 257 respondents or 44.9% in the three batches. Where students experience stress getting poor quality sleep at night, and often fall asleep during the day. This happens because these students cannot overcome the pressure experienced by students, so they turn around and cause the autonomic nervous system to work excessively and the hypothalamus-pituitary-adrenal axis that is too active, causing insomnia. This study shows a high correlation related to the relationship between stress and insomnia levels. Stress that cannot be controlled and overcome will harm students. The negative impact of stress cognitively includes difficulty concentrating, the negative impact emotionally, which includes difficulty motivating oneself, the emergence of anxiety, sadness, frustration and negative physiological impacts, including health problems. , decreased body resistance to disease, frequent dizziness, the body feels lethargy, weak and disturbed sleep quality.

In the research conducted by Syahanita Anindira Putri in 2021 entitled the relationship between sleep patterns and stress levels with the Level of Achievement of Medical Faculty at Universitas Muhammadiyah Surakarta students during online lectures during the Covid-19 pandemic, it shows that there is a relationship between sleep patterns and learning achievement. There is a relationship between stress and learning achievement. This is since inadequate sleep, both in quality and quantity, can impair one's ability to focus, retain information, make decisions, think critically, and accomplish academically. (S. A. Putri & Agustina, 2021). The results of this study indicate that respondents who do not experience stress (normal) still experience sleep disturbances. This occurs due to people not realizing they are under threat while they have slight signs of stress rather than experiencing tension (which is typical for students). Conversely, individuals who experience stress cannot cope with the chronic threats they face,

causing emotional and thought imbalances. This emotional and thought imbalance experienced by individuals with stress can trigger insomnia (Lai & Say, 2013).

According to data from respondents from the three batches, the highest number experienced symptoms of stress and insomnia starting in 2020, 2019 and 2018. This was because these students were in an important period. Where students in class 2020 are currently evaluating 3 semesters, this has created much pressure on students, which requires students to continue studying, of course, with various demands from parents and lecturers to get maximum results. Meanwhile, the 2018 and 2019 batches are final-year students working on a thesis as a condition for obtaining a degree. Students in their final year tend to experience stress which can create more pressure and cause symptoms, especially insomnia at night.

## Conclusion

After conducting research on "The Relationship between Stress and Insomnia Levels in Medical Students Batch 2018, 2019, and 2020 at the Indonesian Muslim University", it can be concluded that: 1. Based on data from respondents, the majority of students experience moderate stress as many as 112 people or 19.6% with the insomnia category the highest percentage was mild insomnia with 257 or 44.9% the highest percentage in the class of 2020 and based on data from respondents, the majority of students experienced moderate stress with the insomnia category being mild insomnia with the lowest percentage in the class of 2018. 2. Based on the study's results, there was a significant relationship between stress levels and insomnia in medical students in the 2018, 2019, and 2020 batches of the Indonesian Muslim University.

## Acknowledgements

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