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ANALYSIS OF ACADEMIC STRESS CORRELATION ON BIOLOGY COGNITIVE LEARNING OUTCOMES BASED ON GENDER OF BOARDING STUDENTS AT SMAIT IHSANUL FIKRI MUNGKID

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ABSTRACT

This study aims to determine the correlation of academic stress to cognitive biology learning outcomes based on the gender of boarding students at SMAIT Ihsanul Fikri Mungkid. The research method used is quantitative correlational type. The population in this study was class XII science students at SMAIT Ihsanul Fikri Mungkid. The research sample was 96 students consisting of 48 male and 48 female samples and was taken by random sampling technique. The results showed that female had a negative correlation between academic stress and learning outcomes with the "sufficient" category to biological cognitive learning outcomes of -0.447 compared to malewho did not correlate with biological cognitive learning outcomes of 0.253.

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Introduction

Entering the 21st century, the developmalet of the need for human resources that have high quality is slowly but surely increasing. The learning process is one of the keys to improving the quality of Indonesia's human resources. The more developed the times, the more varied the educational institutions will be. Private schools want to be included in supporting the quality of education in Indonesia, one of which is the existence of boarding schools. Registered at the *Badan Penelitian dan Pengembangan (Litbang)* and *Pendidikan dan Pelatihan (Diklat) Kemaletrian Agama*, it was noted that the number of boarding school students in 34 provinces throughout Indonesia reached 3.65 million, spread over 25,000 boarding schools.

According to N.A Bau's, L Kadir and R Abudi (2022), every year 5-10% of boarding school students experience problems in carrying out the self-adjustmalet process. This phenomaleon often occurs in boarding schools with very different rules from schools. In regular public schools, students only focus on academics and character building, but in contrast to *boarding schools* that focus on all aspects of education such as religion, skills, self-managemalet, to character building. At regular school, when school hours are over, they will go home and be able to meet with parents, while boarding school students must remain in the

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dormitory. There are differences in this phenomaleon can affect many aspects of the individual students themselves, including the learning process.

Biology is one of the many important subjects in life, especially in studying life and environmalet (Khoirudin, 2019). Biology learning in schools requires learners to understand, analyze conceptually and procedurally and apply to solving a problem (Aqil, 2019). However, the students often think of biology as a subject emphasizing only the memorization of facts. It makes students tend to feel heavy on the biology learning process. Studying biology is not memorizing all aspects of matter but understanding its concepts (Suryanti, 2019). In learning biology, some factors affect the achievemalet of learning outcomes, one of which is the environmalet.

The environmalet exists in the surrounding nature and has a certain influence on the individual. It means that an effective learning condition is a condition that is truly conducive and supports the smoothness and continuity of the teaching and learning process. The learning environmalet of students with demands triggers stress (Hamalik 2012). The emergence of boarding schools is in line with the demands and expectations of the boarding schools and parents today who want students to be able to comply with all regulations, carry out all activities according to schedule, be able to follow all subject matter with good grades, and become the next generation of intellectuals who have a tremaledous religious foundation can be a positive or negative thing for students. Students who can adjust to demands and expectations well will be able to perform various tasks well. However, it does not rule out the possibility that some students feel disturbed and burdened by the demands directed at them because the inability of students to meet needs can cause students to be depressed and uncomfortable condition, such conditions are called stressful conditions.

Stress is a disorder in the body and mind caused by changes and demands of life (Artanti, 2021). Most sources of student stress come from academic problems (Elias, 2011). Stress in the academic field of students arises when there is an expectation of achieving an increased academic result, both from parents, teachers or peers. Academic stress is an uncomfortable condition students feel due to pressure from the environmalet, resulting in psychological and physical conditions that can affect learning outcomes (Pranadji & Nurlaela, 2009). Academic stress is influenced by various factors, one of which is gender. Gender relates to both male and female bodies. Different genders will impact a person's acceptance and need for social support in dealing with stress (Tyas, 2014).

The condition of students who experience academic stress certainly impacts student learning outcomes. Oon (2007) explained that academic stress experienced by students continuously decreases student endurance, making it easy to experience pain. If not treated immediately, it can trigger cardiovascular diseases such as high blood pressure, cholesterol and heart attack. In the long run, unaddressed stress can affect students' maletal exhaustion and discouragemalet and cause students to experience behavioural problems, such as making trouble in the classroom, behaving strangely, self-destructive, passive, explosive emotions, behaving anti-socially, being alone, consuming cigarettes, drugs, and alcohol.

Based on the previous study, it can be understood that academic stress is related to student learning, especially in learning outcomes. In reality, students who show psychological pain due to academic stress felt in the learning process are encountered. Based on an interview at SMAIT Ihsanul Fikri, it is known that some students find it difficult to learn because the student's assignmalets are not only academic but also dormitory. Learning difficulties are also encountered in students, especially in biology subjects, because the biology subjects delivered are due to limited learning media, learning strategies, learning methods, learning environmalets, and even learning models presented by teachers. It was supported by student interviews that

experiencing problems in the learning process was caused by a large number of tasks and other activities that must be carried out outside of academics, such as memorization of the holy verses of the Qur'an, compulsory religious activities, mandatory extracurricular, organizational activities and in boarding schools used in this study, students are required to take part in mandatory dormitory activities in the form of religious activities outside of public school activities carried out after public school activities until the evening. Students must be able to divide their time between studying school materials and religious materials obtained, coupled with a busy schedule of dormitory activities.

Based on the phenomaleon described above, the formulation of the problem in this study is how academic stress correlates to the cognitive learning outcomes of biology students based on gender at SMA IT Ihsanul Fikri Mungkid, Magelang Regency. In brief, this study aims to determine the correlation of academic stress to cognitive learning outcomes in biology learning based on the gender of students at Ihsanul Fikri Mungkid High School, Magelang Regency. In addition, this research is also helpful for providing knowledge and information to the public about the importance of academic stress, and learning outcomes in individuals undergoing an academic activity. This research is expected to contribute as additional reference material for further research.

Methods

This study used a research design, namely quantitative correlational type, with a sample of 96 students consisting of 48 male samples and 48 female samples. The instrumalet used to collect the data in this study was an academic stress scale by racing on the *Educational Stress Scale for Adolescents (ESSA)* indicators and using documaletation techniques for data collection of students' mid and end of semester scores. The study's results were analyzed using descriptive statistical analysis techniques and correlational analysis using *pearson correlation* or *spearman rank* depending on prerequisite tests conducted with the help of computer programs.

Results

The number of samples in this study amounted to 96 samples with male and females genders, who were currently pursuing high school education class XII.

Table 1. Academic Stress Scale Categories

Interval	Category	Frequency			
		Male		Female	
16 – 37	Low Academic Stress	11	22.9%	7	14.6%
38 – 57	Medium Academic Stress	36	75%	41	85.4%
58 – 80	High Academic Stress	1	3%	0	0%
	Total	48	100%	48	100%

Table 1 shows that some of the students of SMAIT Ihsanul Fikri Mungkid are medium academic stress, where male at 75% and female at 85.4%. In low academic stress, male students were 22.9% and female at 14.6%, followed by high academic stress in female at 0% and in male at 3%. It shows that, in general, the academic stress condition of SMAIT Ihsanul Fikri Mungkid students is in the moderate category.

Table 2. Categories of Cognitive Learning Outcomes in Biology

Interval	Category	Result			
		Man		Female	
X < 57	Low	8	16.67%	1	2.08%
57 ≤ X ≥ 79	Medium	25	52.08%	25	52.08%
X ≥ 80	High	15	31.25%	22	45.8%
	Total	48	100%	48	100%

Based on table 2, it is known that most of the students of SMAIT Ihsanul Fikri Mungkid are known to be in the category of medium academic stress. Then, to see the correlation between academic stress and cognitive learning outcomes in biology using *pearson correlation* or *rank spearman* analysis with data processing using computer assistance through SPSS, the hypothesis test results can be seen as follows:

Table 3. Test the Correlation Coefficient on a Sample of Male Students

VARIABLE			ACADEMIC STRESS	ACADEMIC RESULTS
Spearman's rho	MALE'S ACADEMIC STRESS	Correlation Coefficient	1.000	0.253
		Sig. (2-tailed)	.	0.029
		N	48	48
	MALE'S ACADEMIC RESULTS	Correlation Coefficient	0.253	1.000
		Sig. (2-tailed)	0.029	.
		N	48	48

The results of the *Spearman Rank* correlation test show a correlation coefficient value of 0.235 and a significance value of 0.083, which means 0.083 > 0.05. Then the interpretation is a significant correlation H_0 is accepted and H_1 is rejected. In the value of this correlation coefficient, it is known that academic stress in male students on the cognitive learning outcomes of biology does not correlate with a correlation value of $r_{count} > r_{table}$, which is 0.235 < 0.284, then there is no correlation.

Table 4. Test the Correlation Coefficient on a Sample of Female Students

VARIABLE		ACADEMIC STRESS	LEARNING OUTCOMES
FEMALE'S ACADEMIC STRESS	Pearson Correlation	1	-0.447**
	Sig. (2-tailed)		.001
	N	48	48
FEMALE'S LEARNING OUTCOMES	Pearson Correlation	-0.447**	1
	Sig. (2-tailed)	.001	
	N	48	48
**. Correlation is significant at the 0.01 level (2-tailed).			

Based on the pearson correlation test conducted on female's data, it has a significant value of 0.001 from 0.001 < 0.05, the meaning is correlated further with the value of the correlation coefficient of - 0.477. The criteria for hypothesis testing are if the $r_{count} > r_{table}$ is 0.477 > 0.284, which means H_0 rejected and H_1 accepted with the intention that there is a correlation between academic stress in female students and cognitive learning outcomes of

biology. It was also found in the analysis results that a negative sign in the correlation coefficient indicates the presence of a negative or opposite correlation in both variables. It means that if academic stress is high, then learning outcomes will be low, and vice versa if learning outcomes are high, the academic stress experienced is low.

Discussion

This study aimed to determine the correlation of academic stress to biological cognitive learning outcomes based on the gender of boarding students at SMAIT Ihsanul Fikri Mungkid. Furthermore, testing based on gender is on maleand female using the help of SPSS 22.0 software. The sample of male students was tested using the *spearman rank* test because the data distribution was abnormal. It is known that the coefficient value is 0.253 but 0.253 < 0.284, which is calculated $r_{count} > r_{table}$ then at a significance value of 0.083 > 0.05 which means that there is no correlation between the academic stress of male students and the cognitive learning outcomes of biology. While in female, results were found using the *pearson correlation* test because the data had met the prerequisite test resulting in a coefficient value of -0.447 by correlating with a negative direction where when academic stress is high, cognitive learning outcomes are low, in testing on a sample of female students has a sufficient correlation between academic stress and biological cognitive learning outcomes.

Based on the findings of this study, female correlate with academic stress and biological cognitive outcomes, while in male it is not correlated. This is due to scientifically based on stressors and reactions to stressors, male students show stress levels related to conflict, while female are related to intelligence by showing greater behavioural and psychological responses to academic stressors. (Hanifah,et al, 2020).

In line with the research conducted by Habibi and Jefri (2018), the results of the analysis showed that respondents of the female gender experienced more moderate academic stress (41.25%) compared to respondents of the male student sex (32.25%). Kaplan & Sadock (2005) state that stress occurs more in female than male. Femaleeare at twice the risk of experiencing stress. The reason is that there are hormonal differences and differences in psychosocial stressors for female and male. Research in the United States also supports that female tend to have higher stress levels than male. In general, female experience stress 30% higher than male.

In other words, when female students are under pressure, it is generally easier to experience academic stress. The stress responses between female and male are closely related to HPA (*Hypothalamus Pituitary Adrenal*) *activity* associated with regulating the hormone cortisol and the sympathetic nervous system related to heart rate and blood pressure. HPA and autonomic responses were higher in male participants than in adult female, thus affecting a person's *performance* in dealing with psychosocial *stressors*. In addition, sex hormones in female will decrease the response of HPA (*Hypothalamus Pituitary Adrenal*) and *sympathoadrenal,* which causes a decrease in negative *cortisol feedback* to the brain, causing female to tend to be easily stressed, especially in academics.

Female students' academic stress is higher than male students because female are more easily influenced by feelings, while maletend to use logic a lot in acting. In line with the opinion of Misra & Castilo (2004) states that female students have higher academic stress than male. It caused female more often use task-oriented coping mechanisms (Fatningsaliska, C. D., Bidjuni, H., and Wowiling, F, 2015), so teenage female are easier to identify if they experience stressful conditions. While maletend to use ego-oriented coping foodism, so maleare more relaxed in dealing with stressors derived from academic life (Aagolla & Ongoni, 2009). Gender differences in reacting to stressors result from gender role socialization which teaches that behavioural expressions of emotions are socially acceptable (Daud & Khumas, 2012).

The stress experienced by respondents is inseparable from the school environmalet that demands being able to adapt to the task at hand and can exceed a person's ability. Help from the surrounding environmalet will greatly help someone to achieve something. Different genders will influence a person's acceptance and need for social support in the face of stress (Tyas, 2014).

Therefore, this study in line with Maryama (2015) she obtained the results that gender variables contribute 1.9% to causing academic stress and show significant differences in academic stress between maleand female. Gender factors affect academic stress that has the potential to cause a decrease or increase in biological cognitive learning outcomes, and this is not the only supporting factor. However, many other factors can affect academic stress on student learning outcomes.

Conclusion

Based on research, that has been concluded that gender correlates with academic stress and cognitive learning outcomes. In male students, it was found that there was no correlation between academic stress and biological cognitive learning outcomes. Meanwhile, the sample of female students has a negative correlation, and it has a correlation in the category of "sufficient", which means that the higher the academic stress, the lower the learning outcomes, and vice versa, the lower the academic stress, the higher the learning outcomes.

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