



## The Influence of Achievement Motivation and Family Climate on Mathematics Learning Achievement of MTs Annurain Tondowolio Students

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### Abstract

*This study aims to research the effect of achievement motivation and family climate on student achievement at MTs Annurain Tondowolio. This type of research is ex post facto research using the survey method. The research population is all students of MTs.S Annurain Tondowolio, totalling 116 students. Sampling using a simple random sampling technique. as many as 90 students were obtained as research samples. The data were collected using the achievement motivation questionnaire and family climate questionnaires, then analysed using descriptive and inferential statistics, namely multiple linear regression analysis. Based on the results of data analysis, a multiple linear regression equation was obtained, namely,  $Y = 78.182 - 0.030X_1 + 0 + 0 + 0.47X_2 + e$ . The results showed that achievement motivation and family climate simultaneously had a but not significant effect on student achievement at MTs Annurain Tondowolio. The contribution of achievement motivation and family climate to student learning achievement is only 2.4%. These results point out that increasing achievement motivation and family climate together is not enough to improve student achievement.*

*Keywords: Achievement motivation; Family climate; Learning achievement*

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### INTRODUCTION

Education plays an important role in educating the nation's life and developing the Indonesian people as a whole. Mathematics is one of the elements in education that must be learned from elementary school to high school. Learning mathematics is very important for students because mathematics is always used in terms of human life (Anggraini, 2021), as a basis for operations in other disciplines such as physics, improving logical thinking skills and accuracy, as well as training students to get used to solving complex problems, challenge. Meanwhile, according to Hutauruk dan Panjaitan (2020), mathematics learning in schools forms students' mindsets to solve problems and determine the right decisions. Thus, it is very important for education practitioners, especially teachers, to ensure that the implementation of mathematics learning in schools runs effectively.

Apriyanto and Herlina (2020) explained that a student's learning success could be seen from his learning achievement. In line with that, Farhan and Rofi'ulmuiz (2021) stated that learning achievement is often used to see student success in the learning process. Istapra, Sasongko, Kristiawan, Kusumah, & Walid (2021) define learning achievement as a form of assessment of a student's learning outcomes to determine the achievement of learning objectives. This is in accordance with what was expressed by Fane and Sugito (2019), that learning achievement is the level of learning outcomes achieved by students after carrying out learning activities in an effort to achieve predetermined learning objectives. Students learn and remember facts and can communicate their knowledge orally and in writing. Thus, it can be concluded that learning achievement is an achievement that describes the ability of students to achieve learning objectives after following the learning process.

Student learning achievement is certainly not the same between students with one another even though they follow the same learning process at the same time. The high and low of student learning achievement depends on the factors that influence in achieving learning achievement (Fahrurrozi Hayati, & Rohmi, 2020). Syafi'i, Marfiyanto, and Rodiyah (2018), detailing the factors that affect achievement in learning, are classified in detail into two factors, call it internal and external. Internal factors are factors that come from within students consisting of students' psychological and physical conditions (Harso & Merdja, 2019), while external factors are factors that exist outside the individual consisting of family, school, and community conditions (Yennita & Putri, 2021).

Motivation is one part of the internal factors (factors from within the student) that also determine student learning success and can affect learning achievement. Motivation is a volitional impulse that causes a person to perform an act to achieve a particular goal. Aprilia, Lustyantie, and Rafli (2020) explained that the essential motivation in education is the motivation to excel. Mahyuddin A (2017); Nurhidayah (2019) revealed that the motivation to excel is the spirit or encouragement that moves students to desire to obtain maximum mathematics learning achievements, thus causing perseverance and hard work in learning. This is in line with what Saifullah and Muchlis (2018) stated: the motivation for achievement is the tendency to strive for success and choose activities oriented toward success/failure. Thus, the motivation to excel can encourage students to obtain maximum learning achievements as well as become a force that can lead students to choose activities that can lead them to the achievement of success. The motivation for achievement refers to behaviours that produce learning and achievement (academic) (Anwar, Asari, Husniah, & Asmara, 2021). The indicators of the reason for achievement are expressed by Tanadi, Hartini, Irvan, and Putra (2020); Walid, Gamal, and Kusumah (2019), namely setting value standards that are goals and ideals, liking tasks, trying to do homework well, and working creatively.

Several studies have examined the motivation for achieving. As research by Ahmad (2016) Ahmad (2016) explained that the motivation to achieve has a positive effect directly on the achievement of learning mathematics. This influence is due to hard work, the desire to succeed, and the fear of unsuccessfulness in the student. This is in line with Salvador-Ferrer (2021) stated that the motivation for achievement would guide students in achieving their goals. In this case, it is the achievement of maximum achievement.

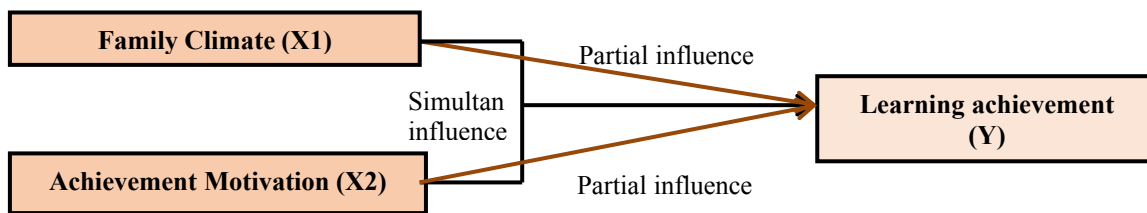
One of the external factors, especially family circumstances, which also determines the success of student learning, can affect learning achievement in mathematics called family climate. Family climate is the atmosphere of life in the family that is felt to be lived by a group of people who breathe the atmosphere (Nurhidayah, 2019). Family climate means interpersonal relationships between parents and children (Das, 2021); these interpersonal relationships include family social, physical, and emotional activities. Slameto (Upu, Nasrullah, & Amir, 2020) explains that family climate is related to parental attention, home atmosphere, and family relationships. Thus, how the efforts of parents in educating children, such as giving children freedom or limiting children, paying attention or neglecting children, as well as suppressing or surrendering completely to children, will affect the condition of students in learning. Likewise, the conditions and conditions of the house, such as the warmth of parents or being indifferent, the full expectations of parents or indifference, and open communication or controlled communication are also causes that affect students.

Several studies have examined the family climate. According to Ardilla and Hartanto (2020) family, environmental factors have a significant effect of 6.50% on student learning achievement, especially on the understanding and encouragement of parents in achieving maximum achievement. In line with research, Nursyam and Ms (2018) positively affect the family climate on student achievement. In addition, Nurhidayah (2019) also stated that the family climate significantly affected mathematics learning outcomes. These studies show that family climate is an external factor that occurs naturally, which directly or indirectly causes students to achieve high or not.

Based on these descriptions, researchers are interested in examining family climate and achievement motivation and their effect on the mathematics learning achievement of junior high school students.

**METHOD**

This type of research is ex post facto research, which is to find and collect facts that occur in family climate, student achievement motivation, and student achievement to know the effect of family climate and achievement motivation as independent variables on student achievement as the dependent variable. The research was carried out in the even semester of the 2021/2022 academic year at MTs.S Annurain Tondowolio, located on Jl. Pendidikan, Kec. Tanggetada, Kab. Kolaka, Southeast Sulawesi. The relationship between the independent variables and the dependent variable can be seen in the picture below:



**Figure 1.** Research Design

The research population was all students of MTs.S Annurain Tondowolio consisting of grades VII, VIII, and IX. As for determining the research sample using a simple random sampling technique to obtain 102 students as research samples. Data collection was carried out using a questionnaire and documentation instrument. Data analysis used descriptive statistical techniques and inferential statistics, namely multiple linear analysis.

**RESULT AND DISCUSSION**

**1. Descriptive Analysis Results**

Based on the results of data collection obtained, a description of the condition of achievement motivation, family climate, and learning achievement of MTs students. Annurain Tondowolio as follows.

**Table 1.** Statistic Descriptive Result of The Research

Statistic	Variable		
	Achievement Motivation	Family Climate	Learning Achievement
Total	91	91	91
Minimal	44	20	75
Maximum	75	40	86
Mean	64,45	29,12	78,37
Deviation standard	6,48	4,30	2,26

Based on table 1, information is obtained that the average value of student achievement motivation is 64.45 with a standard deviation of 6.48, while the family climate variable has an average of 29.12 with a standard deviation of 4.30, and the average achievement of student learning of 78.37 with a standard deviation of 2.26.

The description of the variable level of student achievement motivation, in general, is obtained as follows:

**Table 2.** Overview of Students' Achievement Motivation Levels

Interval	Frequency	Percent (%)	Category
$x \leq 35$	0	0	Very Low
$35 < x \leq 45$	2	2,20	Low
$45 < x \leq 55$	6	6,60	Medium
$55 < x \leq 65$	46	50,55	High
$65 < x$	37	40,66	Very High
Total	91	100	

Table 2 shows that for as many as 91 students at MTs.S Annurain Tondowolio, the dominant level of achievement motivation is in the high category, namely 50.55% and 40.66% in the very high category. In addition, table 2 explains that there are no students whose achievement motivation is very low; only 2.20% of students have low achievement motivation, and 6.60% have moderate. This means that most of the students in the school have a strong drive to obtain maximum achievement.

**Table 3.** Overview of Students' Family Climate Levels

Interval	Frequency	Percent (%)	Category
$x \leq 10$	0	0	Very Low
$10 < x \leq 20$	1	1,10	Low
$20 < x \leq 30$	55	60,44	Medium
$30 < x \leq 40$	35	38,46	High
$40 < x$	0	0	Very High
Total	91	100	

Based on table 3, it is known that as many as 91 students of MTs. Annurain Tondowolio, the description of the family climate level of the dominant student, is in the medium category, which is 60.44%. The rest are as much as 38.46% in the high category and 1.10% low. There were no students who reached the very low or very high category.

**Table 4.** Overview of Student Achievement

Interval	Frequency	Percent (%)	Category
$x \leq 20$	0	0	Very Low
$20 < x \leq 40$	0	0	Low
$40 < x \leq 60$	0	0	Medium
$60 < x \leq 80$	82	89,01	High
$80 < x$	9	10,99	Very High
Jumlah	91	100	

Table 3 shows that the learning achievement of MTs Annurain Tondowolio students is mostly in the high category of 89.01% and the rest are in the very high category of 10.99%. No students get very low, low, and moderate learning achievement.

## 2. Multiple Linear Test

This study aims to see how much influence the variables of learning motivation and family climate have on student achievement, so the test used is multiple linear regression. However, the multiple linear regression test is one of the hypothesis tests that is included in the parametric test category, so several assumptions in this test must be met; namely, the data is normally distributed, has linearity, does not occur multicollinearity, and avoids heteroscedasticity. The collected data is then analyzed using SPSS

version 25 to prove that the multiple linear regression test assumptions have been met. Based on the analysis obtained the following results.

**Table 5.** Analysis Result of Normality Test

Unstandardized Residual	One Sample Kolmogrov Smirnov Test		
	Statistic	Df	Sig.
	0.085	91	0,113

In multiple linear regression, the normality test is not carried out on each variable. Still, the normality test is carried out on the residual data from all variables, such as the family climate variable, achievement motivation, and student achievement. Based on the table, it is known the value of Sig, obtained by  $0.133 > 0.005$ , so that the data obtained meet the assumption of normality, namely, the residual data is normally distributed.

The linearity assumption is built on the basis that the tested variables, namely the independent variable, namely achievement motivation and family climate, and the dependent variable, namely learning achievement, have a significant linear relationship. Based on the analysis obtained, the following results.

**Table 6.** Linearity Test Results

Variable	Deviation from Linearity		$\alpha$	Conclusion
	F	Sig.		
Achievement Motivation (X1)	1,278	0,222	0,05	Linear
Family Climate (X2)	1,527	0,127	0,05	Linear

Based on the results of the linearity test in the table above, Sig's value is known. Deviation From Linearity  $>$  value, it can be concluded that achievement motivation (X1) and family climate (X2) each have a significant linear relationship with learning achievement (Y).

The multicollinearity test was carried out to ensure that the regression model obtained did not correlate with the independent variables; in other words, there were no symptoms of multicollinearity in the achievement motivation variable and family climate. Based on the analysis obtained, the following results.

**Table 7.** Multicollinearity Test Results

Model	Collinearity Statistics		Conclusion
	Tolerance	VIF	
Achievement Motivation	0,990	1,010	No Symptoms
Family Climate	0,990	1,010	No Symptoms

Based on the table above, it is known that the tolerance value of all variables is more than 0.1, and the value of the variance inflation factor (VIF) is less than 10. Thus, it can be concluded that the data in this study did not experience multicollinearity between independent variables.

The heteroscedasticity test is carried out to prove that in the regression model, there is no symptom of heteroscedasticity; namely, the variance from the residual value of one observation to another is different. To test the presence or absence of heteroscedasticity symptoms using the glejser test. Based on the analysis obtained the following results.

**Table 8.** Heteroscedasticity test Result

Variable	t	Sig.	$\alpha$	Conclusion
Achievement Motivation	-0.741	.461	0,05	No Symtoms
Family Climate	1.030	.306	0,05	No Symtoms

The table above shows that the value of Sig. all variables  $> \alpha$  (0.05) is known. Thus, it can be concluded that this study's data did not show heteroscedasticity symptoms in the regression model.

**Table 9.** Results of Multiple Linear Regression Test Analysis

Variable	Regression coefficient	t <sub>count</sub>	Sig.
Constanta	78.182		
Achievement Motivation (X1)	-0.030	-1.032	0,305
Family Climate (X2)	0.047	.921	0,360
F <sub>count</sub> = 1,063			0,350
R Square = 0,024			

Based on the SPSS results presented in the table above, it can be shown that the regression equation formula in this analysis is:

$$Y = 78,182 - 0.030X_1 + 0 + 0.47X_2 + e$$

In the table, it is known that the independent variable achievement motivation has a value of Sig.  $>$ , which is  $9.305 > 0.05$ , as well as the family climate variable whose value of Sig.  $>$  is  $0.360 > 0.05$ , indicating that partially achievement motivation and family climate have no significant effect on the student learning achievement.

Simultaneously, the value of Sig. obtained by  $0.350 > 0.05$  (value) indicates that the variables of achievement motivation and family climate together do not have a significant relationship with learning achievement. The independent variable has no significant effect on the dependent variable because the influence given does not contribute enough to increase learning achievement. The table shows that the R Square value is 0.024; if it is converted in percent form, only 2.4% is the contribution given by achievement motivation and family climate to increasing student achievement. Because the value of R Square is very far from the number 1, it indicates that the influence of the independent variables simultaneously is very weak.

## Discussion

The results of the study showed that there was no significant effect between the variables of achievement motivation on the mathematics learning achievement of MTs. Annurain Tondowolio students. This can be seen in the multiple linear regression test carried out for the achievement motivation variable to obtain a Sig value greater than the alpha value (0.05). The results of this study contradict some of Ahmad's (2016); Trisnowali's (2017) research results show the opposite, namely that achievement motivation significantly affects student learning achievement. Although the research results are contrary to several previous studies, in this study, there are factors that cause no effect. The factor is level of achievement motivation obtained by uniform students is in the very high category, and the high is 90.21%. The rest are at a moderate level of 6.60%. Only 2.20% of students got a low achievement motivation score, and none got a very low score. This cannot represent each level of the category to be able to see the effect on the learning achievement variable.

The study's results showed no significant effect between family climate variables on the mathematics learning achievement of MTs. Annurain Tondowolio students. This can be seen in the multiple linear regression test that has been carried out for the family climate variable to obtain the Sig value, which is greater than the alpha value (0.05). The results of this study contradict the results of previous research by Nursyam and Ms (2018), which showed the opposite, that there was a significant influence between family climates on students' mathematics learning achievement. The search results explain that this study has no significant effect because the family climate scores obtained by students cannot represent all levels of the category. This can be seen in table 3 of the description of the level of student family

climate, which shows that there are no students who get very low and very high category scores, and only 1.10% of students who get low scores. Most of the students got a score with a moderate level of 60.44%, and as many as 28.36% got a high score. This shows that the climatic conditions of the students' families are mostly the same, so they cannot significantly affect student achievement.

Achievement motivation and family climate simultaneously have no significant effect on students' mathematics learning achievement based on the results of multiple linear regression tests that can be seen in the value of Sig. which is greater than the alpha value and the F-count value (F-count) are 1.063. Further investigation showed only a 2.4% contribution of achievement motivation and family climate to learning achievement. The resulting contribution is so weak that it cannot affect students' mathematical achievement. The results of this study have implications for students.

## CONCLUSIONS AND SUGGESTIONS

Based on the research and discussion results, it can be concluded that (1) the average score of student achievement motivation is 64.45, which is at the high category level. A total of 50.55% of students are in this category; (2) the average score of the student's family climate is 29.12, which reaches the medium category level. 60.44% of students are at the level of this category; (3) the average value of student learning achievement is 78.37, which reaches the high category level. A total of 89.01% of students are at the level of this category; (4) partially achievement motivation and family climate have no significant effect on the mathematics learning achievement of MTs. Annurain Tondowolio students; (5) Simultaneously, achievement motivation and family climate also have no significant impact on students' mathematics learning achievement and only have a 2.4% contribution to increasing students' mathematics learning achievement, while 97.6% are influenced by variables outside of achievement motivation and family climate.

Referring to the findings of this study, several suggestions can be formulated, namely (1) in addition to having the desire and drive for high achievement, students are expected to grow their enthusiasm and interest in learning mathematics to obtain the expected achievements; (2) parents should create an atmosphere and conditions that support learning at home, establish close relationships with children, and monitor the learning process and student learning outcomes at school. (3) The teacher should provide an objective assessment based on the ability to achieve students' mathematics learning objectives to measure student learning achievement accurately.

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