



## The Relationship between Anxiety Level and Learning Achievement in Math Subject in Primary School Students

Rizqi Meiliyani<sup>1\*</sup>

<sup>1</sup> Department of Primary Teacher Education, Faculty of Teacher Training and Education, Universitas Sanata Dharma, Yogyakarta, Indonesia

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#### \*Corresponding author:

Rizqi Meiliyani

#### E-mail address:

[rizqimeiliyani@gmail.com](mailto:rizqimeiliyani@gmail.com)

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### ABSTRACT

**Introduction:** This study aims to determine whether there is a relationship between anxiety and mathematics learning achievement in the material of volume building space in primary school students in Bantul, Yogyakarta.

**Methods:** This research uses quantitative research with a survey method through a correlation approach. The population in this study were students in fifth-grade of primary school in Jetis Bantul. The total participant in this study was 28 students. Measuring instruments in this study are math problems, interviews and anxiety scales. The analysis technique used in this study is with the help of the SPSS 22.0 For Windows program. **Results:** The normality test calculation results show a significance on the anxiety scale of 0.200, while the mathematics learning achievement is 0.010. Based on the hypothesis test calculation using the Spearman correlation, the correlation between anxiety and mathematics learning achievement is that there is a relationship between anxiety and achievement learning math but not significant. **Conclusion:** There is a relationship between anxiety and achievement in mathematics in a fifth-grade primary school student.

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### 1. Introduction

Mathematics is one of the subjects that primary school students in Indonesia must master. Mathematics is abstract ideas that contain symbols, so mathematical concepts must be understood before manipulating those symbols. Learning mathematics is a sufficient condition for continuing education to the next level because by learning mathematics, students will learn to reason critically, creatively and actively.<sup>1,2</sup>

Student learning achievement is obtained after students go through learning activities in the classroom and outside the classroom concerning cognitive, affective and psychomotor aspects. To find out the learning outcomes achieved are following the desired objectives, it can be seen through tests. However, often mathematics lessons and tests will cause mental stress on students<sup>3-5</sup>. Based on previous research, it was found that students who are

afraid to take math tests tend to worry about their math scores, many bored students when learning mathematics, and there is a difficult material to understand, namely the volume of space.<sup>6-8</sup>

Several factors positively influence the learning achievement obtained by students. Factors that affect learning achievement are internal factors and external factors. Research conducted by Krinzinger et al. states that one of the internal factors that affect mathematics learning achievement is anxiety.<sup>3</sup> Anxiety that causes a person to be hopeless and helpless so that it affects his entire personality is negative anxiety. Meanwhile, according to Ashcraft et al., anxiety is more future-oriented and general, referring to conditions when individuals feel uncontrollable anxiety, tension, and discomfort about the possibility of something terrible happening.<sup>2</sup> This research aims to determine whether

there is a relationship between anxiety and mathematics learning achievement in primary school students in Bantul, Yogyakarta.

## 2. Methods

This research is a qualitative study using a survey method. This research was conducted at SDN Jetis Bantul, Yogyakarta and the participants consisted of 28 students (19 girls and nine boys). Participation of research subjects was carried out after obtaining consent from parents and signing informed consent. This research has received approval from the Faculty of Medicine's ethical committee, Universitas Sanata Dharma (reference number: KE/ 21/05/2020).

Data collection techniques in this study were tests and non-tests. The test data collection technique is in the form of a math question sheet, while the non-test technique is in the form of an anxiety scale and interviews. A test is a method or tool for carrying out an investigation using carefully selected questions, questions, or assignments.<sup>9</sup> The technique of collecting data using tests in this study was to determine the mathematics learning achievement of fifth-grade students of primary school Jetis Bantul through students doing a math test as many as 15 questions. According to the Guttman scale, an anxiety questionnaire was used to measure anxiety, which

measures the physiological aspects of anxiety. Data analysis was performed using SPSS 22.0 for Windows (IBM, NY, USA) software.

## 3. Results

Table 1 shows the results of examining the anxiety symptom category according to the Gutman scale, more students experienced mild anxiety symptoms (60.7%), and there were no students with severe anxiety.

Meanwhile, the results of the learning achievement test are described in table 2. There are three categories of mathematics achievement, namely low achievement, medium achievement and high achievement. The mathematics test results showed that most of the participants' scores were in the medium achievement category (57.2%).

The hypothesis tested in this study is the relationship between anxiety and mathematics learning achievement. Hypothesis testing is carried out using the Spearman correlation analysis technique. The value of 0.388 indicates a weak relationship between variables and a significance level of 0.862. This value shows a relationship between anxiety and mathematics learning achievement, but not significant.

Table 1. The results of anxiety measurement

<b>Anxiety scale</b>	<b>Amount (n)</b>	<b>Percentage (%)</b>
No anxiety	11	39.3
Mild anxiety	17	60.7
Severe anxiety	0	0

Table 2. Student achievement results based on mathematics tests

<b>Achievement level</b>	<b>Amount (n)</b>	<b>Percentage (%)</b>
Low	12	42.8
Average	16	57.2
High	0	0

#### 4. Discussion

Mathematics lessons for some people are frightening spectre and even cause discomfort and anxiety.<sup>10</sup> The term mathematical anxiety (MA) covers the emotions of fear, tension, and discomfort felt by some individuals in situations involving mathematics, which can interfere with one's performance on tasks mathematics assignments.<sup>11-13</sup> MA have been seen to be associated with math performance in children aged 5–7 years, and this relationship persists into adolescence and adulthood. It seems most likely that this relationship between mathematics and anxiety is a two-way street, with poor performance contributing to MA cases. MA was leading to reduced performance in at least some of the affected individuals.

Based on the results of determining the anxiety scale category, most students were in the medium anxiety category. Anxiety can be influenced by several factors, namely mood, marked by physical symptoms such as physical tension and worries about the future.<sup>17</sup>

Based on the results of determining the mathematics learning achievement category of students of class VB SDN Jetis Bantul, most students were in the medium achievement category. A research found that learning is influenced by several factors: the environment, supporting facilities, intelligence, and psychological conditions.<sup>15-16</sup> Based on the results of the analysis, students who experience anxiety do not necessarily have low performance. Likewise, with the anxiety experienced by students, it is not necessarily influenced by mathematics lessons.

This study indicates a fragile relationship between anxiety and mathematics learning achievement in a fifth-grade student volume-space section, but it is not significant. According to Arens et al., Learning achievement is perfection that students achieve in thinking, feeling, and doing.<sup>17</sup> Achievement of student learning outcomes can be seen from three aspects: cognitive, affective, and psychomotor. Punaro et al. state that an individual's learning achievement results from the interaction between various influencing factors both from within (internal factors) and outside

(internal factors).<sup>16</sup> Internal factors include physical and psychological factors, while external factors include social, cultural, physical environment (home facilities), spiritual or security factors.

#### 5. Conclusion

There is a relationship between anxiety and achievement in mathematics in a fifth-grade primary school student.

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