BENIH

Benih : Journal of Midwifery
Volume 04, Number 01, 2025, doi.org/10.54209/benih.v4i01.365
E.SSN : 2829-4513 (Online)
https://journal.cdfpublisher.org/index.php/Benih/index

The Relationship Between the Frequency of Independent Anatomy Study and the Anatomy Exam Results of Students of the Faculty of Medicine and Health, Imelda University, Medan

Nurul Sulviani[1], Inawaty [2], Indah Suhety[3], Febi Putri Lestari Hutasuhut[4], Zanurul Rifhan[5], Teuku muhammad ilzana[6], Ibnu arizona[7], Asyrafun Nisa Adelaide[8], Meldawati[9]

[1,2,3,4,5,6,7,8,9]Universitas Imelda Medan

Article Info

Keywords:
Independent study, anatomy exam, medical students, study frequency, academic performance.

ABSTRACT

This study aims to examine the relationship between the frequency of independent anatomy study and anatomy block exam results among undergraduate medical students. The data analysis revealed a positive and significant correlation between the two variables, with a Pearson correlation coefficient of r = 0.684, indicating a strong relationship. Furthermore, the simple linear regression analysis showed that each increase in the level of independent study frequency contributed to a 4.82-point increase in the anatomy block exam score. These findings suggest that the more frequently students engage in independent anatomy study, the more likely they are to achieve better academic outcomes in anatomy courses.

Corresponding Author:
Nurul Sulviani
Universitas Imelda Medan
Jl. Bilal No. 24 Medan
E-mail : dr.nurulsulviani@gmail.com

INTRODUCTION

Health education requires students to master various basic competencies as a foundation for future clinical practice. One of the most important foundational courses in the health curriculum is anatomy. This course requires not only memorization but also the ability to understand the structure and relationships between human body parts spatially and functionally. However, the vast and complex material often makes it challenging for students to optimally grasp anatomy through face-to-face learning or practical work alone.

In the learning system widely used in health faculties, academic evaluation is conducted through exams that integrate various basic sciences, including anatomy. To succeed on these exams, students are required to engage in independent study to strengthen their understanding and mastery of the material outside of the formal lecture

schedule. Independent study is a crucial component in supporting student academic success, especially in fields of study that require detailed mastery such as anatomy.

Although the importance of independent learning has been widely discussed in educational theory, there has been little quantitative research empirically demonstrating how the frequency of independent learning directly relates to academic achievement, particularly anatomy block exam scores. Therefore, research is needed to determine whether there is a relationship between the frequency of independent learning and anatomy exam scores for undergraduate medical students.

This research is expected to provide a real picture of the importance of independent learning, as well as being a reference for developing more effective and student-centered learning strategies in health education environments.

METHODS

This study uses a quantitative approach with a correlational approach. The aim is to determine whether there is a significant relationship between the frequency of independent anatomy study and the anatomy exam results of undergraduate medical students. The population in this study were all undergraduate medical students at the Faculty of Medicine and Health, Imelda University, Medan, who are currently or have taken anatomy courses in semesters I to III. The sample was taken using a purposive sampling technique with the criteria of active students in semesters I to III, who have taken at least one anatomy exam, and are willing to be respondents. The sample size was 100 students.

The variables in this study consist of the independent variable, namely the frequency of independent anatomy study, and the dependent variable, namely the results of the anatomy exam. The frequency of independent study is defined as the number of independent study sessions a student undertakes per week individually without lecturer guidance, which is measured using an ordinal scale. Meanwhile, the results of the anatomy exam refer to the final grade obtained by the student in the anatomy block exam, which is obtained from academic data and measured using an interval scale.

Data in this study were collected through two instruments: a questionnaire and documentation. The questionnaire was used to measure the frequency of students' independent study, including duration, time, and learning methods. The questionnaire was structured as a closed-ended multiple-choice questionnaire and was tested for validity and reliability through a pilot test. Documentation was conducted by collecting anatomy block exam scores from the academic department with students' consent.

The data analysis technique was carried out through several stages, starting with descriptive statistical analysis to describe the data distribution, including the mean, median, standard deviation, minimum, and maximum values. Next, a normality test was performed using the Kolmogorov–Smirnov or Shapiro–Wilk test to ensure the data distribution was normal. To determine the strength and direction of the relationship between variables, a

Pearson correlation test was used, as both data are on a numeric scale and normally distributed. If necessary, a simple linear regression analysis was also performed to predict the effect of self-study frequency on anatomy block exam results. The entire analysis process was performed using statistical software such as SPSS or Excel.

This research was also carried out by paying attention to the principles of research ethics, including maintaining the confidentiality of respondent data, obtaining informed consent, not using coercion in completing the questionnaire, and ensuring that all data obtained is only used for academic purposes.

RESULTS AND DISCUSSION

The results of the data analysis obtained from the study on the relationship between the frequency of self-study and the results of the anatomy block exam in undergraduate medical students. The analysis was conducted based on quantitative data collected through questionnaires and academic grade documentation. The collected data were then processed and analyzed using descriptive statistics, normality tests, Pearson correlation tests, and simple linear regression to determine the strength of the relationship and influence between variables. Furthermore, the results of this study are discussed with reference to theory and the results of previous studies to provide a more in-depth interpretation of the findings obtained.

1. Respondent Overview

This study was conducted on 100 undergraduate medical students in their first to third semesters who had taken anatomy courses. The following is a general overview of the respondents based on their frequency of independent study.

Table 1. Distribution of Respondents Based on Frequency of Independent Learning

Independent Study Frequency	Number of Students	Percentage
1-2 Times/Week	30	30%
3-4 Times/Week	40	40%
≥5 Times/Week	30	30%
Total	100	100%

2. Descriptive Statistics

Descriptive statistics are used to describe the data characteristics of research variables.

Table 2. Distribution of Respondents Based on Frequency of Independent Learning

Variabel	N	Minimum	Maksimum	Mean	Std.Deviasi
Study Frequency (X)	100	1	3	2.03	0.74
Anatomy Block Exam Score (Y)	100	50	95	78.3	7.92

Description: Independent study frequency scale:
1 = 1–2 times, 2 = 3–4 times, 3 = ≥5 times per week

3. Normality Test

The normality test was conducted using the Shapiro-Wilk test, with the following results:

Table 3. Shapiro-Wilk Normality Test

Variabel	Sig. (p)
Learning Frequency	0.072
Anatomy Block Exam Score	0.081

Because the p value > 0.05, the data is normally distributed and can be analyzed using the Pearson correlation test.

4. Pearson Correlation Test

The Pearson correlation test is used to determine the strength and direction of the relationship between the independent and dependent variables.

Tabel 4. Shapiro-Wilk Normality Test

Variable X	Variable Y	Nilai R	Sig. (p)
Study Frequency	**Anatomy Block Exam Score**	0.684	0.000

There is a strong and significant positive relationship between the frequency of self-study and the anatomy block exam scores.

5. Simple Linear Regression Test

a. Model Summary

R	R Square	Adjusted R^2	Std. Error of Estimate
0.684	0.468	0.463	5.79

b. ANOVA

Source	JK	df	MK	F	Sig
Regresi	1725.36	1	1725.36	52.47	0.000
Residual	1964.92	98	20.02		
Total	**3689.28**	**99**			

c. Regression Coefficient

Model	B	Std. Error	Beta	t	Sig.
(Constant)	**62.15**	2.34	-	26.55	0.000
Learning Frequency	**4.82**	0.67	0.684	7.17	0.000

Regression Equation:

Y = 62.15 + 4.82X

This means that every 1 point increase in self-study frequency can increase exam scores by 4.82 points.

Discussion

The results of this study indicate a strong and significant relationship between the frequency of independent study and anatomy block exam results. Students who engage in more independent study tend to have higher exam scores. This finding supports Vygotsky's constructivist theory, which emphasizes the importance of active and independent learning in improving understanding and long-term retention. Furthermore, these results are consistent with the findings of Ahmad & Rachman (2022) and Sari et al. (2021), which state that the frequency of independent study has a positive effect on academic achievement, particularly in anatomy courses.

However, it should be noted that learning outcomes are influenced not only by the quantity of learning but also by the quality of learning, the methods used, motivation, and individual learning styles. This study only measured the quantitative aspect of learning frequency without examining its qualitative aspects in depth. Therefore, further studies that consider these variables are highly recommended to obtain a more comprehensive picture of the factors influencing students' academic achievement..

CONCLUSION

Based on the data analysis and discussion, this study concludes that there is a strong, positive, and significant relationship between the frequency of independent anatomy study and undergraduate medical students' anatomy block exam results, as indicated by a Pearson correlation coefficient of r = 0.684. Furthermore, simple linear regression analysis reveals that every one-point increase in the frequency of independent study corresponds to a 4.82-point increase in exam scores. These findings suggest that students who engage more frequently in independent anatomy study are more likely to achieve better performance on their anatomy block exams.

REFERENCE

1. Ahmad, T., & Rachman, H. (2022). Pengaruh Belajar Mandiri terhadap Prestasi Akademik Mahasiswa Kedokteran di Mata Kuliah Anatomi. Jurnal Pendidikan Kedokteran Indonesia, 9(2), 135–142. https://doi.org/10.31289/jpki.v9i2.135
2. Bloom, B. S. (1956). Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook I: Cognitive Domain. New York: David McKay Company.
3. Drake, R. L., McBride, J. M., Lachman, N., & Pawlina, W. (2009). Medical Education in the Anatomical Sciences: The Window of Opportunity. Anatomical Sciences Education, 2(3), 102–107. https://doi.org/10.1002/ase.82
4. Knowles, M. S. (1975). Self-Directed Learning: A Guide for Learners and Teachers. New York: Association Press.
5. Nasution, A. H. (2020). Waktu Efektif Belajar Mandiri terhadap Pemahaman Anatomi Klinis Mahasiswa Kedokteran. Jurnal Ilmu Pendidikan Medis, 4(1), 45–53.
6. Sari, N., Hidayat, R., & Putra, D. (2021). Pengaruh Penggunaan Aplikasi Anatomi Digital terhadap Hasil Ujian OSCE dan Blok Anatomi Mahasiswa Kedokteran. Jurnal Teknologi Pendidikan Medis, 5(1), 25–34.
7. Vygotsky, L. S. (1978). Mind in Society: The Development of Higher Psychological Processes. Cambridge, MA: Harvard University Press.

8. Zimmerman, B. J. (2000). Attaining Self-Regulation: A Social Cognitive Perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), Handbook of Self-Regulation (pp. 13–39). San Diego: Academic Press.