IJMR E-ISSN: 3109-9777
INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEACH

TRAINING AND ASSISTANCE IN QUANTITATIVE DATA PROCESSING USING IBM SPSS STATISTICS FOR TARBIYAH STUDENTS

Khasna Athiurobbi[1], Isnaini Choirunisak[2]
[1] Institut Agama Islam Badrus Sholeh, Indonesian
[2] Institut Agama Islam Badrus Sholeh, Indonesian
Email : khasnaatt2@gmail.com[1], isnainichoirunisak24@gmail.com[2]

E-ISSN : 3109-9777		
Received: January 2026	Accepted: January 2026	Published: February 2026

Abstract :

Last semester students of the Faculty of Tarbiyah often face obstacles in quantitative data analysis. This community service program aims to improve the statistical data processing skills of fifth semester students using IBM SPSS software version 25. The intervention was carried out through a structured training program consisting of eight offline meetings, applying methods such as tutorials, workshops, and simulations. Students were involved in hands-on practice covering descriptive statistics, instrument test, assumptions of statistical tests, and hypothesis test (one-sample t-test, paired, and independent). The effectiveness of the program was evaluated using independent assignments, whose scores were analyzed with a one-sample t-test against a test value of 70. The results showed significant progress, with an average participant score of 78.08, which was statistically higher than the minimum standard. The Sig (2-tailed) value was 0.000, which means that this training was effective in training data processing competencies using IBM SPSS. The activity was closed with a follow-up in the form of creating a consultation group and disseminating material to ensure continuous assistance. This training effectively improved students' data analysis competencies, contributing to an increase in student research capacity and academic quality in the university environment.

Keywords : *IBM SPSS, Statistics, Structured Training, Tarbiyah Students*

INTRODUCTION

A final project is one of the academic requirements that students must complete in order to graduate from college. In Indonesia, the forms of final projects are increasingly varied, ranging from writing a thesis to publishing scientific articles in reputable journals. Regardless of the form, both require mastery of research methodology, including skills in developing instruments, collecting data, and analyzing results. One type of data commonly used in research is quantitative data, which requires technical competence in statistical processing and interpretation (Haryanti et al., 2022; Wijaya, 2020).

However, many final-year students still struggle with processing research data, especially numerical data. A preliminary survey of fifth-semester students showed that most of them did not understand the stages of quantitative data analysis. Others were familiar with various statistical techniques but were unable to apply them in actual research. This gap between theoretical knowledge and practical skills has the potential to delay the completion of final projects and affect the quality of research results (Bulu et al., 2021; Suddin & Salsinha, 2022).

This condition indicates the need for intervention in the form of systematic

and continuous training for students. One approach that is considered effective is through data processing training and structured mentoring that integrates theory and practice (Nugrahani & Imron, 2023). This training aims not only to introduce data analysis tools, but also to build students' applied skills in using statistical software, one of which is IBM SPSS Statistics.

This activity becomes more relevant when directed at students in the middle semesters, such as semester V. By providing training earlier, students have enough time to internalize the material before entering the thesis research stage in the final semester. This approach is expected to reduce the risk of academic burnout and increase the likelihood of graduating on time (Cahyono et al., 2021; Suri & Arifin, 2022). In addition, students can also focus more on developing the substance of their research, rather than just overcoming technical obstacles (Irwandi & Oktaviyah, 2022; Saftari et al., 2024).

Therefore, this research and community service program is designed to provide training and guidance in data analysis using IBM SPSS Statistic for fifth-semester students of the Tarbiyah Faculty at the Badrus Sholeh Islamic Institute in Kediri. This program is expected to serve as a foundation for strengthening students' methodological capacities, while also contributing to the improvement of the quality of final projects and scientific publications within the university environment.

RESEARCH METHOD

This training activity was held at the Multimedia Room of IAI Badrus Sholeh Purwoasri, Kediri Regency, during November–December 2025, with eight face-to-face meetings. The training participants were fifth-semester students majoring in Madrasah Ibtidaiyah Teacher Education (PGMI) and Arabic Language Education (PBA) at the Faculty of Tarbiyah.

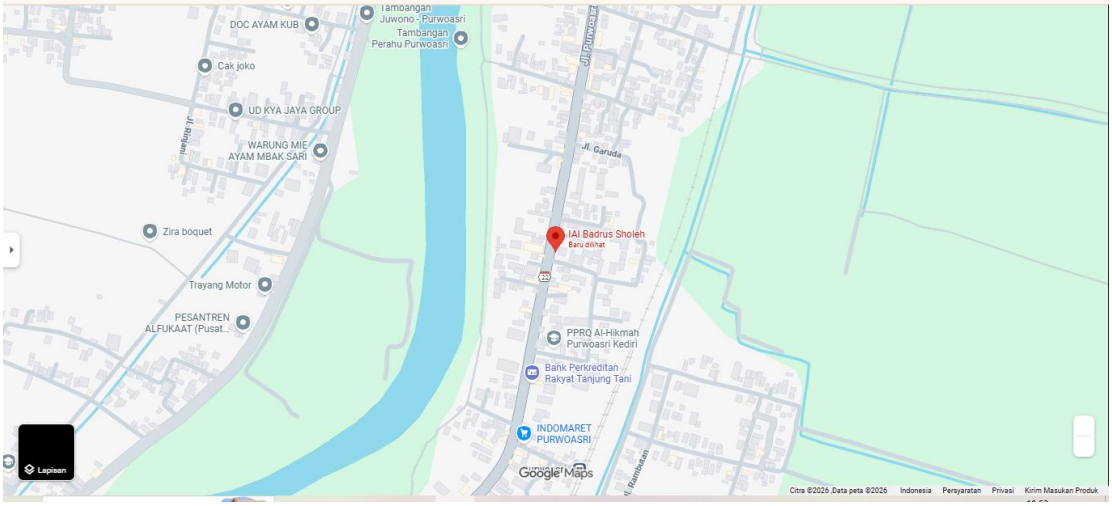

Figure 1 : Training Activity Location Map

A total of 40 students participated in the program. There were three stages of activities, namely the preparation stage, the implementation stage, and the follow-up stage. In general, the training flow can be detailed in Table 1.

Table 1 : Training Activity Details

Stage	Tutor Activities	Student Activities
Preparation	• Needs analysis by conducting interviews with students and thesis supervisors to map out difficulties and needs related to data analysis methods. • Designing applicable training modules and materials.	• Describe the initial difficulties encountered. • Download and install IBM SPSS Statistics software version 25.
Implementation	• Session 1: Descriptive statistics • Session 2: Instrument validity and reliability tests • Session 3: Normality and homogeneity of data tests • Session 4: One-sample t-test hypothesis tests • Session 5: Paired-sample t-test hypothesis tests • Session 6: Independent-sample t-test hypothesis tests • Session 7: N-gain test • Session 8: Practice	• Session 1: Descriptive statistics • Session 2: Instrument validity and reliability tests • Session 3: Normality and homogeneity of data tests • Session 4: One-sample t-test hypothesis tests • Session 5: Paired-sample t-test hypothesis tests • Session 6: Independent-sample t-test hypothesis tests • Session 7: N-gain test • Session 8: Practice
Follow-up	• Create a communication group through the Sevima EdLink platform for ongoing consultation. • Review and provide feedback on the results of self-analysis. • Disseminate materials.	• Utilize communication groups for self-consultation. • Work on and submit the output of self-analysis. • Peer sharing.

The methods used during the training were tutorials, workshops, and simulations (Sitopu et al., 2021). The tutorials began with an explanation of theoretical concepts and continued with a live demonstration of the use of IBM SPSS Statistics version 25. Participants followed each step demonstrated together using the same practice data. Workshops were conducted through guided practice, where participants applied the analysis techniques they had learned to a wider variety of data. Meanwhile, in the simulation activity, participants were given a research case to work on independently. Participants had to determine the appropriate analysis technique themselves, calculate it in SPSS, and compile an interpretation of the SPSS output.

The effectiveness of the training is measured by comparing the final competency of participants against the minimum achievement standard. The analysis was conducted using a one-sample t-test with a standard value (test value) of 70 based on the minimum standard set in the Minister of Education, Culture, Research, and Technology Regulation No. 39 of 2025 concerning Quality Assurance in Higher Education. The statistical hypothesis tested is whether the average score of participants (μ) is equal to the standard ($H0: \mu = 70$; $H1: \mu \neq 70$).

Previously, the data was tested for normality using the Shapiro-Wilk test. The analysis was performed using IBM SPSS software version 25.

FINDINGS AND DISCUSSION

This SPSS data processing training program was attended by 40 students from the Madrasah Ibtidaiyah Teacher Education and Arabic Language Education study programs at the Tarbiyah Faculty of the Badrus Sholeh Islamic Institute, Purwoasri, Kediri Regency. This activity targeted fifth-semester students. This selection was based on the consideration that in the fifth semester, students begin to study research methodology and need data analysis skills for the preparation of their thesis proposals.

The training was conducted in stages. Overall, the training went according to the planned stages. In the preparation stage, the researchers conducted interviews with thesis supervisors to find out the difficulties often encountered by students during supervision. The researchers also conducted interviews with students to map out what needs were required so that this training could bridge the difficulties experienced by students. Prior to the training, the researchers developed training modules and datasets and provided offline assistance with the installation of IBM SPSS Statistics version 25 software.

Figure 2 : Students Listening to the Material

Figure 3 : Students Practicing Data Processing in IBM SPSS

The implementation stage lasted for eight meetings, each lasting 90 minutes, held offline in the multimedia room of the Faculty of Tarbiyah. Each meeting focused on mastering statistical analysis techniques using IBM SPSS. The first meeting focused on basic statistical concepts, introduction to SPSS functions and descriptive statistics using tutorial methods. The second meeting focused on validity and reliability tests of research instruments, with hands-on practice using the item-total correlation method and Cronbach's Alpha calculation. In the third meeting, the material continued to the preliminary tests of parametric analysis, namely the normality test using Kolomogorov-Smirnov and Shapiro-Wilk and the data homogeneity test using Levene's Test.

The fourth to sixth meetings introduced hypothesis testing for experimental research, namely using t-tests. The t-tests covered included one-sample t-tests, paired sample t-tests, and independent sample t-tests. Each hypothesis testing session is accompanied by an interpretation of the SPSS output results. The seventh meeting discusses the calculation and interpretation of the N-Gain Score. This structured material is designed so that students can gradually understand the sequence of statistical tests, from data tabulation to interpretation and test decision making.

In the eighth meeting, students were given a complete research case simulation, complete with problem formulations, raw datasets in Excel, and research questions to be completed independently without guidance. The simulation activity required students to apply all the material they had learned, from processing data, selecting the appropriate statistical test, inputting the dataset from Excel into a worksheet in SPSS, running the analysis in SPSS, to interpreting the output and making test decisions. The students' work results were then used as a reference to measure the overall achievement of the training objectives. The assessment results are shown in Table 2.

Table 2 : Results of Student Independent Practice Assessment

Student	Score	Student	Score	Student	Score	Student	Score
M1	78	M11	66	M21	78	M31	80
M2	82	M12	79	M22	82	M32	74
M3	74	M13	85	M23	94	M33	59
M4	89	M14	69	M24	77	M34	71
M5	68	M15	93	M25	65	M35	85
M6	75	M16	71	M26	88	M36	68
M7	92	M17	76	M27	62	M37	72
M8	87	M18	81	M28	79	M38	91
M9	72	M19	63	M29	95	M39	77
M10	85	M20	90	M30	67	M40	84

Normality tests were conducted as a precondition for parametric analysis. The test results showed that the data were normally distributed, as presented in Table 3.

Table 3 : Results of the Normality Test for Student Independent Practice

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
nilai	.065	40	.200*	.978	40	.618

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The Shapiro-Wilk normality test shows a Sig. value of 0.618 > 0.05, which means that the data is normally distributed. Thus, the normality assumption for parametric tests is fulfilled. Next, the data is processed using the one-sample t-test. The results of the one-sample t-test can be seen in Table 4 and Table 5.

Table 4 : One Sample Statistics Test Results

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
nilai	40	78.08	9.587	1.516

Statistical results show that the average score for student independent practice is 78.08, which is statistically higher than the achievement standard of 70. This average achievement is quite good, even though it is not close to a perfect score. Several factors may be the cause. First, the training material is dense, covering seven types of statistical analysis that students must complete in a limited time. This has the potential to cause cognitive fatigue in some participants. Second, variations in students' mathematical backgrounds also affect the level of depth of understanding of the material, as found in similar research by Sofyan & Saefullah (2025). Third, technical constraints, some students experienced difficulties installing the IBM SPSS software used, resulting in not being able to perform simulations directly during the training, which caused delays in participating in the training optimally.

Table 5 : Results of the One-Sample Test to Measure the Achievement of Training Objectives

One-Sample Test

	Test Value = 70					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
nilai	5.327	39	.000	8.075	5.01	11.14

The output shows the comparison between the average value of students'

independent practice and the standard achievement value (test value) of 70. The test results produced a t-value of 5.327 with a degree of freedom (df) = 39 and a significance level Sig. (2-tailed) = 0.000. Because the Sig (2-tailed) value = 0.000 < α = 0.05, the null hypothesis (H0) is rejected and the alternative hypothesis (H1) is accepted. This means that there is a statistically significant difference between the average score of participants and the standard value of 70.

This finding confirms the research conducted by Fadmi & Buton (2020) that students' SPSS data processing competence has met the achievement standard, so that the training objectives can be declared achieved. The results of this study are in line with the research conducted by Fadmi et al. (2019) and Purba et al. (2021), which revealed that SPSS data processing training has an effect on improving participants' understanding. The results of this study also support the research by Saragih & Sihotang (2023) that there is a significant increase in secondary data processing competency using SPSS.

In order to ensure the sustainability of mentoring and expand the benefits of training, several follow-up steps have been planned. First, a communication group has been formed through the Sevima EdLink platform, which serves as a forum for ongoing consultation. Through this channel, participants can ask technical questions, share problems, and discuss with lecturers and fellow participants at any time. Second, researchers periodically review and provide feedback on the results of independent analysis. This process ensures the correct application of methods while providing timely corrections and guidance. Third, training materials are disseminated more widely. All modules, practice datasets, and tutorial videos are archived and shared through the platform Sevima EdLink platform, which is easily accessible to all students. This allows participants to review the material as needed, while also opening up opportunities for other students who did not participate in the training to utilize these learning resources.

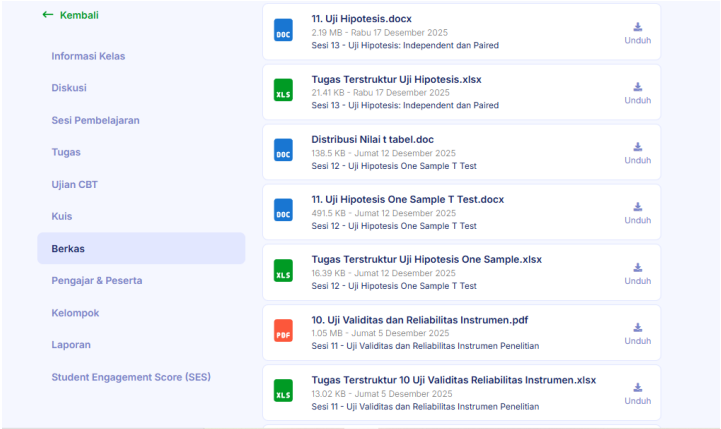

Figure 4 : Dissemination of Materials on the Sevima EdLink Platform

CONCLUSION

The data processing training using SPSS for fifth semester students of the Tarbiyah Faculty at IAI Badrus Sholeh Kediri has been successfully implemented

and achieved its objectives. The structured training, which consisted of eight sessions, included tutorials, workshops, and simulations that effectively developed students' competencies in basic statistical analysis and hypothesis testing. The evaluation results through a one-sample t-test showed an average self-study score of 78.08 and a Sig (2-tailed) value of 0.000, which means that this training was effective in training students' data processing skills using IBM SPSS Statistics. Through follow-up measures such as creating online consultation groups, individual mentoring, and dissemination of materials, the impact of the training is expected to be sustainable. Therefore, a similar training model is recommended to be implemented more widely and sustainably to support the improvement of student research capacity and academic quality in higher education institutions.

REFERENCES

Bulu, V. R., Nahak, R. L., & Lawa, S. T. N. (2021). Pelatihan Pengolahan dan Analisis Data Menggunakan SPSS. *PEMIMPIM: Pengabdian Masyarakat Ilmu Pendidikan*, *1*(1), 1–4. https://doi.org/https://doi.org/10.37792/pemimpin.v1i1.268

Cahyono, D., Naheria, N., & Fauzi, M. S. (2021). Pelatihan Pengolahan Data Penelitian Berbasis Software JASP dan SPSS bagi Mahasiswa FKIP Universitas Mulawarman Kalimantan Timur. *Jurnal Abdi Masyarakat Indonesia*, *1*(2), 421–426. https://doi.org/10.54082/jamsi.141

Fadmi, F. R., & Buton, L. D. (2020). Pelatihan Analisis Data Bivariat Menggunakan SPSS Bagi Dosen STIKES Mandala Waluya Kendari. *Jurnal Mandala Pengabdian Masyarakat*, *1*(1), 2722–4902. https://jurnal-pharmaconmw.com/jmpm

Fadmi, F. R., Buton, L. D., & Zulfadlih, L. S. (2019). Statistics Program Training for Vocational School Teachers in Kendari City. *MIRACLE Journal of Public Health*, *2*(2), 162–168. https://journal.fikes-umw.ac.id/index.php/mjph/article/view/91

Haryanti, N., Anwar, M. A., Hidayati, Y., & Dianto, A. Y. (2022). Pelatihan Pengolahan Data Statistika Melalui Aplikasi Software Statistical Product and Service Solution (SPSS) di Institut Agama Islam Pangeran Diponegoro Nganjuk. *Indonesian Journal of Engagement, Community Services, Empowerment and Development*, *2*(1), 46–60. https://doi.org/10.53067/ijecsed.v2i1

Indonesia. (2025). PERATURAN MENTERI PENDIDIKAN TINGGI, SAINS, DAN TEKNOLOGI REPUBLIK INDONESIA NOMOR 39 TAHUN 2025 TENTANG PENJAMINAN MUTU PENDIDIKAN TINGGI, Pub. L. No. 39 Tahun 2025.

Irwandi, & Oktaviyah, N. (2022). Pelatihan Pengolahan Data Menggunakan Aplikasi SPSS untuk Meningkatkan Kompetensi Mahasiswa dalam Menganalisis Data. *Jurnal Pemantik*, *1*(2), 144–153. https://doi.org/https://doi.org/10.56587/pemantik.v1i2.47

Nugrahani, F., & Imron, A. (2023). Pelatihan Penggunaan Software SPSS dalam Membantu Mengolah Data Kuantitatif pada Mahasiswa Semester Akhir. *JUPEMI: Jurnal Pengabdian Multidisiplin Indonesia*, *1*(2), 39–42.

https://doi.org/10.36908/akm.v2i

Purba, D. S., Tarigan, W. J., Sinaga, M., & Tarigan, V. (2021). Pelatihan Penggunaan Software SPSS Dalam Pengolahan Regressi Linear Berganda untuk Mahasiswa Fakultas Ekonomi Universitas Simalungun di Masa Pandemi Covid 19. *Jurnal Karya Abdi*, *5*(2), 202–208. https://doi.org/https://doi.org/10.22437/jkam.v5i2.15257

Saftari, M., Hengki, Sarwindah, & Sinta. (2024). Pelatihan Statistical Package for the Social Sciences (SPSS) Bagi Dosen dan Mahasiswa untuk Penelitian Kuantitatif. *Journal of Human and Education*, *4*(3), 388–392. https://jahe.or.id/index.php/jahe/index

Saragih, N., & Sihotang, H. (2023). Pelatihan Aplikasi MS SPSS dalam Pengolahan Data Sekunder Penelitian bagi Mahasiswa Fakultas Ekonomi Universitas Katolik Santo Thomas Medan. *KAIZEN: Jurnal Pengabdian Pada Masyarakat*, *1*(2), 64–73. https://www.advernesia.com/

Sitopu, J. W., Purba, I. R., & Sipayung, T. (2021). Pelatihan Pengolahan Data Statistik Dengan Menggunakan Aplikasi SPSS. *Dedikasi Sains Dan Teknologi*, *1*(2), 82–87. https://doi.org/10.47709/dst.v1i2.1068

Sofyan, M., & Saefullah, A. (2025). Pelatihan Olah Data Penelitian Kuantitatif Menggunakan Aplikasi Olahdata Statistik SPSS, AMOS, JASP, EVIEWS, Dan SMART-PLS kepada Dosen dan Mahasiswa STIE Ganesha. *Gudang Jurnal Pengabdian Masyarakat*, *3*(1), 332–335. https://doi.org/10.59435/gjpm.v3i1.1414

Suddin, S., & Salsinha, C. N. (2022). Pelatihan Pengolahan Aplikasi Statistika Software SPSS bagi Guru-Guru Matematika SMA Negeri 01 Kefamenanu. *Jurnal Pengabdian Kepada Masyarakat*, *13*(1), 37–46. https://doi.org/https://doi.org/10.26877/e-dimas.v13i1.4613

Suri, G. P., & Arifin, N. Y. (2022). Pelatihan Pengolahan data Aplikasi SPSS pada Siswa SMK Ibnu Sina Batam. *MPKM: Media Pengabdian Kepada Masyarakat*, *1*(1), 29–32.

Wijaya, T. (2020). Peningkatan Kemampuan Pengolahan Data Melalui Pelatihan Statistik dan Aplikasi Program SPSS bagi Guru-Guru SMA di DIY. *To Maega : Jurnal Pengabdian Masyarakat*, *3*(1), 31–35. https://doi.org/10.35914/tomaega.v3i1.293