

Utilization of SPSS Application as A Data Analysis Tool For Various Research Needs

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ABSTRACT

The development of information technology has significantly changed the way research data is processed and analyzed. One of the software that is often used is IBM SPSS, which functions to perform statistical analysis quickly and organized. This study aims to study the use of SPSS applications as a tool to analyze data for various research needs and evaluate the extent to which the application is effective in assisting the data processing process. The method used is a literature study that involves collecting and analyzing various journals, scientific articles, as well as previous research that discusses the use of SPSS in various academic and research activities. The research stages include determining the problem, reading existing material, collecting information, analyzing data using SPSS, evaluating the results, and concluding the research.

Keywords: SPSS; Data Analysis; Statistics; Research; Data Processing.

How to Cite

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INTRODUCTION

SPSS was first created in 1968 and later purchased by IBM. Data can be entered manually or imported from a neat Excel file. In the field of social and business research, SPSS is very important because it can handle large amounts of data and run various types of statistical analysis, both those that describe the data in general and those that are used to make broader conclusions.(Puspita, 2026)

The development of information technology has a huge impact on various aspects of life, especially in the field of education. One of the consequences is the ease of obtaining various software and applications that can support the learning process. In the field of statistical data management, software such as SPSS (Statistical Package for the Social Sciences) has become a very helpful tool in analyzing and processing statistical data more efficiently.

Understanding and ability to process statistical data is very important and should not be ignored in today's world of education.(Aruan et al., 2023)

SPSS is an application program that is able to perform a fairly complete statistical analysis and also has a data management system in a graphical environment. The program uses easy-to-understand menus and simple dialog boxes, making using SPSS easier and more practical. SPSS's capabilities are expanded to be used by a wide range of users, such as in factory production, scientific research, and more. Thus, now we know the complete meaning of SPSS, namely Statistical Product and Service Solutions. SPSS can enter various types of data or directly enter into the SPSS data editor. (Spss et al., n.d.)

Statistical data is used to make decisions based on facts and evidence, both in academia and work. Therefore, teaching students how to process, analyze, and understand statistical data is essential to provide them with skills that are suitable for the demands of the future.(Aruan et al., 2023)

In simple terms, it can be said that statistics is a science or tool used in the research process, starting from collecting data, displaying data, analyzing data, to making decisions. Statistical techniques and methods are used to process and analyze data in order to explain the relationship or influence between each variable seen in a study.(Usage et al., 2023)

SPSS has become popular because of its easy-to-understand interface, such as graphs and tables. In addition, SPSS can also be changed easily and the analysis can be updated quickly. In addition, SPSS can also be connected to other programs, such as sending or receiving data from Excel.(Agustín et al., 2023)

Two main windows appear when SPSS is run: the data editor and the output viewer. The first window is used to feed data into the SPSS program, and the second window displays the results of the data processing. The data to be processed is entered through the Data Editor menu, which appears automatically on the screen when the SPSS program is running. Next, the data is processed in the same menu, which is the editor data. (Handayani et al., 2023)

RESEARCH METHOD

This study employs a literature review approach to analyze the use of IBM SPSS software in data processing and statistical analysis. The literature review is conducted by collecting, reviewing, and synthesizing various scientific sources, including journals, research articles, and academic publications relevant to the application of SPSS in statistical data analysis.

The research begins with problem formulation based on the previously developed background. This stage is essential to define the research focus, determine the types of literature to be used, and establish the appropriate analytical approach. After that, a literature study is conducted by reviewing various sources

related to the use of SPSS in quantitative research and statistical data processing to build a strong and relevant theoretical foundation.

Data collection is carried out through the search and identification of scientific articles and journals obtained from digital databases such as Google Scholar using specific keywords such as “Statistical Analysis” and “SPSS.” In addition, secondary data from previous studies are also utilized, including research based on community service activities, student surveys, and financial reports from companies used as research subjects.

The data analysis process is conducted by examining how SPSS is applied in the selected studies, particularly in descriptive statistical analysis and multiple linear regression analysis. At this stage, content analysis is also applied to evaluate the relevance of SPSS features in addressing contemporary data processing needs. This approach allows the researcher to identify usage patterns without conducting direct experiments or primary data collection in the field.

Finally, conclusions are drawn based on the synthesis of findings from the reviewed literature analyzed through SPSS-related studies. The conclusions aim to provide an overview of the effectiveness of SPSS in supporting data processing and statistical analysis in research and to serve as a reference for future studies in the field of data analytics.

RESULTS AND DISCUSSION

SPSS allows data practitioners to understand the characteristics of the dataset before implementing more complex algorithms due to its rapid data visualization capabilities, such as frequency distribution and outlier identification. In addition, predictive analysis relies on the inferential statistical features available in SPSS, such as hypothesis testing and multiple regression analysis. SPSS is typically used for the validation of models created using programming languages such as Python or R. This is done to ensure that relationships between variables have statistical significance that can be accounted for through confidence intervals and p-values. (In & Technology, n.d.)

Today, most industries use unstructured data, but SPSS is still great for structured data processing. This is essential for data-driven decision-making in the business and research fields. With SPSS's graphics-based interface (GUI), the process of transforming raw data into valuable information is accelerated. This is because the GUI interface minimizes technical barriers for data analysts without in-depth programming experience. To produce more accurate and scientifically credible prediction models, there will be challenges in the future. This will require combining the flexibility of artificial intelligence algorithms with the traditional statistical precision of SPSS. (In & Technology, n.d.)

Research 1

The training activity on the use of the SPSS application for PPKN FKIP students of the University of Nias in Semester 6 went smoothly and participants gave positive responses. The results of this activity show some important progress related to the training objectives. Improved knowledge, skills, and readiness of students to perform data analysis are all examples of these advancements. The results of the activity are presented as a whole here:

1. Increasing Students' Understanding of Basic Concepts of Statistics and SPSS Applications Students better understand the basic concepts of statistics and the use of SPSS, as shown by better results in the post-test compared to the pre-test.

2. Increasing Student Independence in Quantitative Data Analysis: Students can use SPSS to input data, choose the right analysis method, and interpret the results of statistical analysis.
3. Establishment of a Collaborative Statistics Learning Culture Students become more independent and confident in processing quantitative data, especially to support academic and research plans.
4. Strengthening Citizenship Education Students' Special Competencies in Social Analysis: Collaborative training encourages discussion, cooperation, and knowledge exchange in data-driven case studies.
5. Students gain a better understanding of social data through participants' positive assessments of materials, facilitators, and material training approaches that are tailored to Pancasila and Citizenship education.
6. The results of the evaluation show that the training improves the applied statistical skills of FKIP students. The training improves understanding of the concepts and skills of data processing techniques using SPSS. Most participants showed positive responses to the material, training methods, and instructors. (Harefa et al., 2025)

In Semester 6 of PPKN FKIP Universitas Nias received training on the use of the SPSS application. This is done to improve students' ability to process and analyze quantitative data needed in research. Students do not yet have sufficient skills to use statistical software, which is a very important skill for compiling scientific papers and theses. As a result, this ability becomes a barrier to this activity. Through this training, students will learn basic statistical concepts and gain practical skills in using various SPSS features. (Harefa et al., 2025)

Training not only transfers technical knowledge, but also increases students' confidence in conducting research and improving their statistical abilities. The material provided is tailored to the field of Pancasila and Citizenship education so that students can understand how data analysis can be used to scientifically study various social and political phenomena. Therefore, students can see data as an unbiased source for decision-making and the preparation of research results. (Harefa et al., 2025)

The results of the training showed that students were better at data input, descriptive analysis, and interpretation of statistical analysis results. It is proven that an active, interactive, and practice-based approach to learning helps students more easily understand the material. SPSS training not only improves technical skills but also helps students work together in the classroom through discussions, group work, and joint problem-solving. Overall, it is an important step in improving academic quality and student readiness for research-based final projects. (Harefa et al., 2025)

Research 2

The purpose of this study is to find out the opinions of respondents about the use of IBM SPSS as a data analysis tool in various research needs. After the distribution of the questionnaire to 30 respondents, the data was analyzed using the IBM SPSS descriptive statistical feature. The results showed that respondents were in the category that approved the use of IBM SPSS in the research data analysis process; The mean for each statement item is 3.22, with the overall average being 3.22.

The study showed that the most preferred statement was item P5, with an average value of 3.60, indicating that respondents felt greatly helped by the use of IBM SPSS to simplify the research process. Items P2 and P4, on the other hand, received the lowest average scores, 2.70 each. Still, these values show that participants tend to give positive responses to the use of SPSS.

For the spread of the data, the standard deviation values for each item ranged between 0.379 and 0.702, indicating that respondents' answers were fairly uniform and not too different from each other.

Therefore, it can be concluded that most participants agree that IBM SPSS is beneficial for conducting research.

SPSS is considered to be able to help the data processing process, conduct various types of statistical tests, and display the results of the analysis in a fast and organized manner. SPSS is also thought to reduce the calculation errors that usually occur when analyzing data manually. IBM SPSS is very popular with students, teachers, and researchers because of this capability.

The results of the study show that using IBM SPSS helps analyze research data. The app not only speeds up data processing, which saves time, but also helps researchers get precise and reliable analysis results. Therefore, IBM SPSS deserves to be one of the main tools that cater to the needs of different researches, especially when it comes to statistical data analysis.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
P1	30	3	4	3.50	.509
P2	30	2	4	2.70	.651
P3	30	2	4	2.87	.629
P4	30	2	4	2.70	.702
P5	30	3	4	3.60	.498
P6	30	3	4	3.50	.509
P7	30	3	4	3.40	.498
P8	30	3	4	3.27	.450
P9	30	3	4	3.47	.507
P10	30	2	4	3.00	.455
P11	30	2	4	3.17	.461
P12	30	3	4	3.30	.466
P13	30	3	4	3.33	.479
P14	30	3	4	3.17	.379
P15	30	2	4	3.33	.547
Valid N (listwise)	30				

Figure 2 Output from respondents on IBM SPSS applications

The results of descriptive statistical analysis conducted using IBM SPSS on thirty participants showed that the mean value for each statement ranged between 2.70 and 3.60. The P5 statement received the highest average score, 3.60, indicating that most participants responded positively to the statement. Statements P2 and P4 received the lowest average scores, 2.70 each, indicating that for the most part. Overall, all items earned an average score of 3.22, which is in the agree category. This shows that respondents prefer the use of IBM SPSS as a data analysis tool in the study.

In addition, the standard deviation value on all items ranges from 0.379 to 0.702. The standard value of the deviation that is relatively small and entirely below the number 1 indicates that the respondents' answers tend to be homogeneous or do not have too large a difference. In other words, most respondents gave a relatively similar assessment of each statement submitted. This condition indicates that the level of agreement of respondents on the benefits of using IBM SPSS is quite high.

Based on these findings, it can be concluded that the use of IBM SPSS is considered an effective tool to assist in the process of processing and analyzing research data. Respondents assessed that the use of

SPSS can meet many research needs, such as managing data, conducting statistical analysis, and presenting research results more quickly and systematically. Therefore, IBM SPSS can be one of the very useful software.

Research 3

The data processing process begins with data collection, which can be seen in table 1 and table 2 of this research article. This data is collected from the official websites of PT Telekomunikasi Tbk and PT Indosat Tbk, and then recorded in Microsoft Excel, before being processed to produce research results. (Ramadhani et al., 2023)

Analysis of results on SPSS

	N	Minimum	Maximum	Mean	Std. Deviation
Biaya Pemasaran	40	178.831	52.680.000	1.500.490	1.240.350
Biaya Gaji Karyawan	40	369.232	15.524.000	5.008.306	4.676.183
Pendapatan	40	5.692.420	143.210.000	50.491.216	43.883.127
Valid N (listwise)	40				

Figure 3. Descriptive Analysis Table

The table above shows the descriptive statistical results of 40 research variables from 2017 to 2021, with a sample of 40 and numbers in millions. Based on the results, the descriptive statistical explanation for each variable can be concluded as follows:

1. Marketing Costs

Marketing costs have the smallest value of 178,831 and the largest value of 5,268,000. These results show that the magnitude of marketing costs ranges between 178,831 and 5,268,000. With an average of 1,500,490.30 and a standard deviation of 1,240,350.12, the average value is greater than the standard deviation, which indicates that the data is evenly distributed.

2. Employee salary cost

The lowest employee salary cost is 369,232 and the highest reaches 15,524,000. The results show that the amount of marketing costs is in the range of 369,232 to 15,524,000. The average value of marketing costs is 5,008,306.48, while the standard deviation is 4,676,183.36. This indicates that the mean is greater than the standard deviation, which means that the data has a balanced spread.

3. Income

The income variable has the smallest number of 5,692,420 and the largest number of 143,210,000. The results show that the amount of marketing costs is in the range of 5,692,420 to 143,210,000. The mean value of the marketing cost variable is 50,491,216.5 and the standard deviation is 43,883,127.7. This means that the average is greater than the standard deviation, thus indicating that this data is evenly distributed. (Ramadhani et al., 2023)

CONCLUSION

The IBM SPSS statistical application is very helpful in various fields of research because it is able to help the process of processing, analyzing, and interpreting data quickly, accurately, and systematically. Its various features allow researchers to perform descriptive and inferential statistical analysis without the need for complex programming skills. In addition, the use of SPSS can reduce manual calculation errors, thereby speeding up the research process.

The conclusion provides a summary of the expected results of the hypothesis or research objectives. The conclusion does not combine findings and discussion, but provides a summary of the results. If needed, the final conclusion may include a list of steps to be taken to support the research idea.

SPSS is a software in data analysis that makes it easier for various groups, such as academics and practitioners, to manage data accurately and efficiently, which is important in decision-making. Therefore, based on the needs analysis, it is necessary to provide training to the public regarding the use of SPSS applications in data processing. (Latifah et al., 2025)

DAFTAR PUSTAKA

- Agustin, A., Marlina, S., Rodia, R. A., Indriani, F., & Bambang, M. (2023). *Statistical Data Processing Training for Students*. 1(1).
- Aruan, A. D. K., Manalu, A. N., Manik, E., & Agusmanto, J. B. (2023). *STUDENTS' SKILLS IN PROCESSING STATISTICAL DATA*. 7(2).
- In, S., & Technology, E. R. A. (n.d.). *No Title*.
- Handayani, M., Jayadilaga, Y., Fitri, A. U., & Rachman, D. A. (2023). *Socialization and Introduction of the SPSS Data Processing Application to Health Administration Students of the Faculty of Sports and Health Sciences*. 1(2).
- Harefa, A. T., Hulu, S. K., Harefa, A., & Lase, B. P. (2025). *Training on the Use of SPSS Application in Supporting Data Analysis for PPKN FKIP Students of the University of Nias Semester 6*. 4(1), 2525–2531.
- Latifah, U. W., Musa'ad, F., Munjirin Mukhotib Lathif, A., & Ariyanto, C. (2025). Training on data processing and analysis using the SPSS application. *Clinical Psychology*, 8(2), 407–418. <https://doi.org/10.22460/as.v8i2.26683>
- Usage, P., Spss, A., Concept, P., Skills, D. A. N., Cultivate, M., & Statistics, D. (2023). *GOVERNANCE : Journal of Islamic Education Management GOVERNANCE : Journal of Islamic Education Management*. 11(01), 87–101.
- Puspita, S. (2026). *UTILIZATION OF SPSS SOFTWARE FOR STATISTICAL DATA ANALYSIS IN ACADEMIC RESEARCH*. pp. 5(1), 72–78. <https://doi.org/10.52859/jam.v5i1.957>
- Ramadhani, R. A., Maharani, M. D., Azizyah, N., Dewita, P., Alnazwa, S., Nanlohy, R., Maesaroh, S. S., Digital, B., Indonesia, U. P., & Tasikmalaya, K. (2023).
- Spss, A., Spss, P., & Regresi, A. (n.d.). *The data processing process from the regression equation model using the Statistical Product and Service Solution (SPSS) W.T. Bhirawa*.