

DESCRIPTION OF HEMATOCRIT VALUE IN TUBERCULOSIS (TB) PATIENTS RECEIVING ANTI-DRUGS TREATMENT TUBERCULOSIS IN RAYA PUSKESMAS 2019 INTERMEDIATE MATERIALS

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Abstract

*Tuberculosis is a direct infectious disease caused by the bacterium *Microbacterium Tuberculosis*. Transmission occurs when a TB patient coughs or sneezes, the germs are spread in the air in the form of sputum droplets (droplet nuclei). The use of OAT in TB patients based on the duration of OAT consumption can cause a decrease in hematocrit values due to side effects of the drug, namely anemia and thrombocytopenia. The method used in this research is descriptive. This study aims to describe the hematocrit value of TB patients receiving OAT treatment at the Raya Pematangsiantar Health Center. The sample of this research is 30 people taken by purposive sampling. The results of the study showed that 24 people (80%) received OAT treatment at the end of the second month, where the examination results showed that 15 people (62.5%) had low hematocrit values, and 9 people (37.5%) were normal.) shows a low hematocrit value. At the examination of patients receiving treatment at the end of the sixth month, 6 people (20%) showed that the results of the examination with low hematocrit values were 6 people (100%). The low hematocrit value found in TB patients on treatment at the end of the second and sixth months is due to the side effects of the OAT consumed, age, sex and immunity against bacteria that attack blood cells resulting in a decrease in the value of the hematocrit. It can be concluded that of the 30 TB patients who received OAT treatment at the end of the second and sixth months, the number of patients with low hematocrit values was more than those with normal hematocrit values. Therefore it is suggested to the public to be able to follow the treatment procedures that have been recommended especially for TB sufferers.*

Keywords: Hematocrit value, OAT, TB

INTRODUCTION

Tuberculosis (TB) is still a major health problem in the world and in Indonesia. According to WHO in 2013 the incidence of tuberculosis cases in Indonesia was around 4% of the number of tuberculosis patients in the world and was the 4th largest after India, China and South Africa. According to the Global TB Report 2013, there are 189 per 100,000 population or 450,000 cases. HIV prevalence among tuberculosis patients is estimated at 3%. The drugs used in the treatment of tuberculosis consist of several combinations including isoniazid, rifampicin, pyrazinamide, streptomycin and ethambutol.

TB treatment is one of the main strategies for TB control because it can break the chain of transmission. Although the National TB Control Program has succeeded in achieving the target detection rate and cure rate, the management of TB in most hospitals and private practices is not in accordance with the Directly Observed-Treatment Short-course (DOTS) strategy and the application of service standards based on the International Standards for Tuberculosis Care (ISCT) (Ministry of Health RI, 2015).

Indonesia is the world's third largest contributor to TB cases, where it is estimated that there are 176,677 new cases of TB every year (Ministry of Health RI, 2015), then experienced an increase in the number of new cases of 188,405 cases (Ministry of Health RI, 2015). However, in 2016 there was a decrease of 156,723 new cases. (Ministry of Health RI, 2016).

In Southeast Sulawesi, the number of new cases of smear positive TB each year decreased by 4,932 cases (10.23%) (Ministry of Health RI, 2016), then decreased by 3,978 cases (5.63%) (Ministry of Health RI, 2015), and continues to experience a decrease in the number of cases by 2,830 cases (3.81%) (Ministry of Health RI, 2018).

Based on the number of new smear positive TB cases, Kendari City is included in the top three regencies/cities in Southeast Sulawesi where the highest number of cases are Muna Regency and Konawe Regency. In 2014, the number of new positive smear TB cases in Kendari City was 551 cases (14.01%) and in 2015 there was a decrease in the number of cases by 545 cases (17.71%) (Southeast Sulawesi Prov. Health Office, 2015).

One of the causes of TB therapy failure is patient non-compliance in taking the drug because the therapy must be carried out for a long time for 6-8 months (Sudoyo, 2012). In the use of anti-tuberculosis drugs, it is not uncommon to find side effects that complicate the target of treatment. The resulting abnormalities range from a mild increase in blood transaminase levels (SGOT/SGPT) to hepatitis.

In North Sumatra, the number of new positive smear TB cases each year decreased by 3,932 cases (2.23%) (Ministry of Health, 2014), then decreased by 3,078 cases (1.63%) (Ministry of Health, 2015), and continued to experience a decrease in the number of cases by 2,830 cases (1.81%) (Ministry of Health RI, 2014).

Based on data obtained from the initial survey at the Raya Pematangsiantar Health Center, the number of positive smear TB cases in 2017 was 61 cases. Whereas in 2018 as many as 49 positive smear TB cases. For the January-April 2019 period, the number of positive smear TB cases who visited the Raya Pematangsiantar Health Center were 13 new cases, where cumulatively until April 2019 the number of patients undergoing OAT treatment was 43 people and those who were temporarily undergoing treatment at the end of the second month were 24. 6 people and patients who took treatment at the end of the sixth month (Puskesmas Raya Pematangsiantar 2019).

Research purposes

To find out the description of the results of the Hematocrit examination in TB patients who received OAT Treatment at the Raya Pematangsiantar Health Center.

To see the results of the Hematocrit examination in TB patients who are on OAT therapy at the end of the second month.

To see the results of the Hematocrit examination in TB patients who are on OAT therapy at the end of the sixth month.

LITERATURE REVIEWS

Treatment of Anti Tuberculosis Drugs (OAT)

OAT is a drug for treating tuberculosis which consists of drugs whose ingredients consist of isoniazid, rifampicin, pyrazinamide, streptomycin, and ethambutol. OAT is one of the drugs used in the therapy process for TB sufferers, because this drug can affect the growth, multiplication, and survival of bacteria. OAT treatment is carried out in TB sufferers with the aim of curing patients, preventing death, preventing relapse, breaking the chain of transmission and preventing the occurrence of germ resistance to OAT drugs. Mycobacteria are acid-fast bacteria which are different from other germs because they grow very slowly and quickly develop resistance when exposed to one drug.

Tuberculosis disease

Tuberculosis is an infectious disease that is chronic and contagious, caused by the bacterium *Mycobacterium tuberculosis* and can attack various organs of the body, including the lungs. TB is not a hereditary disease and is not caused by a curse or witchcraft. TB can be cured with proper treatment, if not it can cause death. (Hardjoeno, 2017).

Hematocrit

Hematocrit in Webster's new world medical dictionary is defined as the total volume of red blood to the volume of whole blood expressed in percent (%) which depends on gender. Hematocrit is the ratio of the part of the blood containing erythrocytes to the volume of the whole blood which is calculated in percent (%) (Sutedjo, 2017).

Blood

Blood is a suspension of particles in a liquid colloidal solution containing electrolytes. Blood acts as a medium of exchange between fixed cells in the body and the external environment, and has protective properties for organisms and especially for blood itself (Ganong, 2018).

METHODS

The type of research used in this study was descriptive, namely to obtain an overview of the results of hematocrit examination in TB patients receiving OAT treatment at the Raya Pematangsiantar Health Center.

The population in this study were all TB patients who came to visit and take treatment at the Raya Pematangsiantar Health Center until May 2019 as many as 30 people.

The sample is representative of the population, taken in this study were TB patients who were treated for OAT and performed hematological examinations. The sampling technique in this study used a purposive sampling technique, which took patients who were undergoing OAT therapy at the Raya Pematangsiantar Health Center with the following criteria:

Research Inclusion Criteria:

1. Pulmonary TB patients
2. Willing to be a respondent

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3. Undergoing OAT therapy for 2 months and 6 months

Research Exclusion Criteria:

1. Referral pulmonary tuberculosis patient
2. Not willing to be a respondent
3. Stop OAT therapy

RESULTS AND DISCUSSION

Contents Results and Discussion

The study was conducted in the Raya Health Center laboratory, starting in July 2019 on outpatients from the pulmonary polyclinic with a diagnosis of pulmonary TB, at the end of the 2nd and 6th month of treatment and carrying out routine blood tests (Hematocrit). A sample of 30 people was obtained, namely 24 people undergoing OAT therapy at the end of month II and 6 people receiving OAT therapy at the end of month VI. The results of the research results can be seen in the following table.

Table of Characteristics of Pulmonary TB Patients with Hematocrit Values at the Raya Health Center

Characteristics of Respondents	Hematocrit			
	Normal		Low (<37%)	
	n	%	n	%
Age				
20-30 Years	3	10		
31-40 years	2	6.7		
41-50 years	2	6.7	4	13.2
51-60 years			8	26.7
>61 years			11	36.7
Total	7	23.4	23	76.6
Gender				
Man	9	30	10	33.3
Woman			11	36.7
Total	9	30	21	70
Work				
Employee	7	23.4	6	20
Self-employed			9	30
Trader	2	6.7	4	13.2
Student	2	6.7		
Total	11	36.8	19	63.2
OAT therapy				
Month II	9	30	15	50
VI month			6	20
Total	9	30	21	70

The table above shows that of the 30 respondents, respondents aged 20-30 years with normal hematocrit were 3 respondents (10%), aged 31-40 namely 2 respondents (6.67%), aged 41-50 namely 2 respondents (6.7%), while the respondents who had a low

hematocrit value <37%, namely aged 41-50, were 4 respondents (13.2%), aged 51-60, namely 8 respondents (26.7%), aged >61, namely 11 respondents (36.7%).

The table above shows that of the 30 respondents, respondents based on work, namely employees with normal hematocrit, namely 7 respondents (23.4%), employees with low hematocrit <37%, 6 respondents (20%), respondents with self-employed persons with low hematocrit <37%, 9 respondents (30%), traders with normal hematocrit were 2 respondents (6.7%), traders with low hematocrit <37% were 4 respondents (13.2%) and students with normal hematocrit were 2 respondents (6.7%).

The table above shows that 30 respondents based on gender consisted of 9 men with normal hematocrit (30%), 10 men with low hematocrit <37% (33.3), while all women with low hematocrit <37%. as many as 11 respondents (36.7%).

The table above also shows respondents with second month OAT therapy with normal hematocrit values of 9 respondents (30%) and 15 respondents with low hematocrit <37% as many as 15 respondents (50%), while in VI month OAT therapy all had hematocrit values low <37% as many as 6 respondents (20%).

Contents of Discussion Results

This is in accordance with previous research which stated that consuming OAT has side effects which cause the hematocrit value to decrease, this is because the side effects of these drugs cause blood cells such as hemoglobin to be low resulting in anemia in sufferers. The occurrence of anemia in patients indicates that the hematocrit value becomes low. With the side effects of OAT and bacteria in the body, it can cause a decrease in the normal value of blood cells in the body. (Harjoene, 2017).

Most of the subjects of this study were male. This is consistent with previous research which stated that men tend to suffer more from TB than women because it may be caused by men's social and occupational status which have a high potential for a decrease in hematocrit values.

Decreased hematocrit values in TB patients who receive OAT treatment at the end of the second and sixth months occur mostly in men and those aged 50 years and over. With many decreases in the value of hematocrit occurring in men, this is due to the habit of men smoking. While the decline that occurs at the age of 50 years and over is due to the fact that in old age the immune response and endurance begin to decrease so that it is susceptible to tuberculosis bacterial infection and the duration of consuming OAT as stated in Wahyu's study (2015).

According to Hiswani quoted from WHO, TB sufferers tend to be higher in men than women. In the male sex, this disease is higher due to tobacco smoking, which lowers the body's defense system.

The decrease in hematocrit in TB patients receiving OAT treatment is due to blood cell abnormalities, namely anemia, thrombocytopenia and leukopenia and consumption of anti-tuberculosis drugs. If hematological abnormalities are still found (decreased hematocrit value) at the end of the treatment period, the patient will be given vitamins to return the cells to normal.

The results of this study also showed that of the 30 TB patients who were receiving OAT treatment, at the end of the second month of treatment there were 24 patients, the examination results found normal hematocrit values, namely 9 (37.5%) patients. This is due to the age factor, the length of drug consumption and the body's defense system which is still able to fight bacteria that cause interference with blood cells in the body. It is suspected that the body's defense system is able to fight tuberculosis bacteria, causing blood cells in the body to also become normal.

Rahmawati (2014) states that someone who is still young and taking drugs that have not been in a long time will not have an effect on blood cells in the body.

With the body's defenses that are still strong against bacteria that attack blood cells in the blood so that blood cells in the body do not experience abnormalities, especially in the hematocrit, it is known that if blood cells experience abnormalities or decrease in normal values such as hemoglobin, it will affect the hematocrit value. .

On the hematocrit examination of TB patients receiving OAT treatment at the end of month VI as many as 6 (20%) patients showed abnormal or low results. enters the body which causes a decrease in the value of hematocrit in the body. This is also influenced by the duration of taking OAT so that blood cells such as Hemoglobin and Thrombocytopenia decrease so that the hematocrit value also decreases (Wahyu, 2015).

The hematocrit value is normal if there are no blood cell abnormalities in the body, because the hematocrit is closely related to blood cells so that normally blood cells also show normal hematocrit values (Riswanto, 2013).

CLOSING

Conclusion

1. The characteristics of respondents aged 20-30 years with normal hematocrit were 3 respondents (10%), aged 31-40 namely 2 respondents (6.67%), aged 41-50 namely 2 respondents (6.7%), while respondents who had a low hematocrit value <37%, namely aged 41-50, 4 respondents (13.2%), aged 51-60, namely 8 respondents (26.7%), aged >61, namely 11 respondents (36.7%) .
2. Characteristics of respondents based on work, namely employees with normal hematocrit, namely 7 respondents (23.4%), employees with low hematocrit <37%, 6 respondents (20%), self-employed respondents with low hematocrit <37%, 9 respondents (30%), respondents with a normal hematocrit work were 2 respondents (6.7%), traders with a low hematocrit <37% were 4 respondents (13.2%) and students with a normal hematocrit were 2 respondents (6.7%).
3. Characteristics of respondents based on gender consisted of 9 men with normal hematocrit (30%), 10 men with low hematocrit <37% (33.3), while all women with low hematocrit <37% were 11 respondents (36.7%).
4. Response characteristics to the second month of OAT therapy with normal hematocrit values were 9 respondents (30%) and 15 respondents with low hematocrit <37% as many as 15 respondents (50%), while in the sixth month of OAT therapy all had low hematocrit values <37 % as many as 6 respondents (20%).

5. There were 15 respondents (62.5%) with a low hematocrit value and a normal hematocrit value at the end of the second month.
6. Hematocrit examination of TB patients with OAT therapy at the end of the sixth month was 6 respondents (100%) had low hematocrit.

Suggestions

1. Health Agency

It is hoped that the health analyst will be able to immediately confirm to the appointing doctor if a low hematocrit value is found in a TB patient, so that treatment is carried out immediately.

2. Health Institution

As a study material about hematocrit values and provide counseling about hematocrit values in pulmonary TB patients with OAT therapy.

3. Further Researcher

It is hoped that future researchers can use this scientific paper as a reference for developing materials regarding hematocrit values in TB patients with OAT therapy in future research.

4. Public

People should always maintain their health so that the hematocrit is normal.

REFERENCES

- Aditama and dawn. 2016. Pulmonary Tuberculosis (Problems and Countermeasures). Jakarta: University of Indonesia.
- Amir and bahar, 2016. Pulmonary Tuberculosis; Internal medicine textbook. Printing 1. Jakarta: Interna Publishing.
- RI Ministry of Health, 2015. National Guidelines for Tuberculosis Control. Jakarta: MOH RI
- Provincial Health Office Southeast Sulawesi, 2014. Southeast Sulawesi Health Profile 2014. Kendari: Southeast Sulawesi Provincial Health Office.
- Provincial Health Office Southeast Sulawesi, 2015. Southeast Sulawesi Health Profile 2015. Kendari: Southeast Sulawesi Provincial Health Office.
- Gandasoebrata R., 2017. Clinical laboratory guide. 15th printing. Jakarta: Dian Rakyat.
- Gang, William. F. 2018. Textbook of Medical Physiology. Jakarta: EGC
- Hardojoeno. H, et al. 2017. Guidelines for Laboratory and Diagnostic Examination. Issue 6: Jakarta: EGC
- Icksan, 2008. Radiology of the Thoracic Tuberculosis. Jakarta: Sagung Seto.
- RI Ministry of Health, 2013. Indonesian health profile 2013. Jakarta: RI Ministry of Health
- RI Ministry of Health, 2014. Indonesian health profile 2014. Jakarta: RI Ministry of Health
- RI Ministry of Health, 2015. Indonesian health profile 2015. Jakarta: RI Ministry of Health
- RI Ministry of Health, 2016. Indonesian health profile 2016. Jakarta: RI Ministry of Health
- Mahode, 2011. Anemia in Children with Pulmonary Tuberculosis. Semarang: FK Undip.
- Manalu, HSP, 2015. Factors Influencing the Incidence of Pulmonary TB and Its Mitigation Efforts: Journal of Health Ecology Vol.9. No .41, April 2019. Anatomy of the Human Body. Edition. 2. Jakarta: EGC

- Mutaqqin and ramadhani, 2017. Nursing Care of Clients with Respiratory System Disorders. Jakarta: Salemba Madika Publisher.
- Oehadin, 2009. Hematological aspects of tuberculosis. <http://www.repository.unpad.ac.id>. Retrieved 8 May 2019.
- Rahmawati, 2014. Hematological Overview of Tuberculosis Patients Who Are Treated with Anti-Tuberculosis Drugs (OAT) (Thesis). Palangkaraya. Palangkaraya University
- Riswanto, 2013. Hematology Laboratory Examination. Yogyakarta: Alfabeta & Get to Know Medika
- Pearce, 2017. Anatomy and Physiology for Paramedics. Jakarta: Gramedia Pustaka.
- Association of Indonesian Pulmonary Doctors. 2016. Guidelines for Diagnosis and Management of Tuberculosis in Indonesia. PDPI.
- Poasia Community Health Center, Kendari City, 2017. Recapitulation of the 2017 Poasia Health Center Kendari City Report. Kendari: Poasia Health Center, Kendari City.
- Sudoyo, 2016. Textbook of Internal Medicine. Jakarta: Department of Internal Medicine. Medical School.
- Sutedjo, AY. 2017. Pocket book to recognize disease through the results of laboratory tests. Yogyakarta: Amara Books.
- Wahyu, 2015. Description of the Number of Platelets and Hematocrit Examination in Tuberculosis (TB) Patients in the Treatment Process (Thesis). Surakarta. sebelas Maret University
- WHO. 2011. Global Tuberculosis Report. 12-04
- Nur Ilham, R. ., Arliansyah, A., Juanda, R., Multazam, M. ., & Saifanur, A. . (2021). RELATHIONSIP BETWEEN MONEY VELOCITY AND INFLATION TO INCREASING STOCK INVESTMENT RETURN: EFFECTIVE STRATEGIC BY JAKARTA AUTOMATED TRADING SYSTEM NEXT GENERATION (JAT-S-NG) PLATFORM. International Journal of Economic, Business, Accounting, Agriculture Management and Sharia Administration (IJEBAS), 1(1), 87–92.<https://doi.org/10.54443/ijebas.v1i1.27>
- Yusuf Iis, E., Wahyuddin, W., Thoyib, A., Nur Ilham, R., & Sinta, I. (2022). THE EFFECT OF CAREER DEVELOPMENT AND WORK ENVIRONMENT ON EMPLOYEE PERFORMANCE WITH WORK MOTIVATION AS INTERVENING VARIABLE AT THE OFFICE OF AGRICULTURE AND LIVESTOCK IN ACEH. International Journal of Economic, Business, Accounting, Agriculture Management and Sharia Administration (IJEBAS), 2(2), 227–236.<https://doi.org/10.54443/ijebas.v2i2.191>
- Geovani, I. ., Nurkhotijah, S. ., Kurniawan, H. ., Milanie, F., & Nur Ilham, R. . (2021). JURIDICAL ANALYSIS OF VICTIMS OF THE ECONOMIC EXPLOITATION OF CHILDREN UNDER THE AGE TO REALIZE LEGAL PROTECTION FROM HUMAN RIGHTS ASPECTS: RESEARCH STUDY AT THE OFFICE OF SOCIAL AND COMMUNITY EMPOWERMENT IN BATAM CITY. International Journal of Educational Review, Law And Social Sciences (IJERLAS), 1(1), 45–52.<https://doi.org/10.54443/ijerlas.v1i1.10>
- Bustani, B., Khaddafi, M. ., & Nur Ilham, R. (2022). REGIONAL FINANCIAL MANAGEMENT SYSTEM OF REGENCY/CITY REGIONAL ORIGINAL INCOME IN ACEH PROVINCE PERIOD YEAR 2016-2020. International Journal of Educational Review, Law And Social Sciences (IJERLAS), 2(3), 459–468.<https://doi.org/10.54443/ijerlas.v2i3.277>

- Nur Ilham, R., Heikal, M. ., Khaddafi, M. ., F, F., Ichsan, I., F, F., Abbas, D. ., Fauzul Hakim Hasibuan, A. ., Munandar, M ., & Chalirafi, C. (2021). Survey of Leading Commodities Of Aceh Province As Academic Effort To Join And Build The Country. IRPITAGE JOURNAL, 1(1), 13–18.<https://doi.org/10.54443/irpitage.v1i1.19>
- Nur Ilham, R., Likdanawati, L., Hamdiah, H., Adnan, A., & Sinta, I. . (2022). COMMUNITY SERVICE ACTIVITIES “SOCIALIZATION AVOID STUDY INVESTMENT” TO THE STUDENT BOND OF SERDANG BEDAGAI. IRPITAGE JOURNAL, 2(2), 61–64.<https://doi.org/10.54443/irpitage.v2i2.312>
- Falahuddin, F., Fuadi, . F., Munandar, M., Juanda, R. ., & Nur Ilham, R. . (2022). INCREASING BUSINESS SUPPORTING CAPACITY IN MSMES BUSINESS GROUP TEMPE BUNGONG NANGGROE KERUPUK IN SYAMTALIRA ARON DISTRICT, UTARA ACEH REGENCY. IRPITAGE JOURNAL, 2(2), 65–68.<https://doi.org/10.54443/irpitage.v2i2.313>
- Majied Sumatrani Saragih, M. ., Hikmah Saragih, U. ., & Nur Ilham, R. . (2021). RELATIONSHIP BETWEEN MOTIVATION AND EXTRINSIC MOTIVATION TO ICREASING ENTREPRENEURSHIP IMPLEMENTATION FROM SPP AL-FALAH GROUP AT BLOK 10 VILLAGE DOLOK MASIHUL. MORFAI JOURNAL, 1(1), 1–12.<https://doi.org/10.54443/morai.v1i1.11>
- Sandi, H. ., Afni Yunita, N. ., Heikal, M. ., Nur Ilham, R. ., & Sinta, I. . (2021). RELATIONSHIP BETWEEN BUDGET PARTICIPATION, JOB CHARACTERISTICS, EMOTIONAL INTELLIGENCE AND WORK MOTIVATION AS MEDIATOR VARIABLES TO STRENGTHENING USER POWER PERFORMANCE: AN EMPERICAL EVIDENCE FROM INDONESIA GOVERNMENT. MORFAI JOURNAL, 1(1), 36–48.<https://doi.org/10.54443/morai.v1i1.14>
- Sinurat, M. ., Heikal, M. ., Simanjuntak, A. ., Siahaan, R. ., & Nur Ilham, R. . (2021). PRODUCT QUALITY ON CONSUMER PURCHASE INTEREST WITH CUSTOMER SATISFACTION AS A VARIABLE INTERVENING IN BLACK ONLINE STORE HIGH CLICK MARKET: Case Study on Customers of the Tebing Tinggi Black Market Online Store. MORFAI JOURNAL, 1(1), 13–21.<https://doi.org/10.54443/morai.v1i1.12>
- Ilham, Rico Nur. et all (2019). Investigation of the Bitcoin Effects on the Country Revenues via Virtual Tax Transactions for Purchasing Management. International Journal of Supply Management. Volume 8 No. 6 December 2019.
- Ilham, Rico Nur. et all (2019).. Comparative of the Supply Chain and Block Chains to Increase the Country Revenues via Virtual Tax Transactions and Replacing Futures of Money. International Journal of Supply Management. Volume 8 No. 5 August 2019.
- Lasta Irawan, A. ., Briggs, D. ., Muhammad Azami, T. ., & Nurfaliza, N. (2021). THE EFFECT OF POSITION PROMOTION ON EMPLOYEE SATISFACTION WITH COMPENSATION AS INTERVENING VARIABLES: (Case Study on Harvesting Employees of PT. Karya Hevea Indonesia). International Journal of Social Science, Educational, Economics, Agriculture Research, and Technology (IJSET), 1(1), 11–20. <https://doi.org/10.54443/ijset.v1i1.2>
- Rahmaniar, R., Subhan, S., Saharuddin, S., Nur Ilham, R. ., & Anwar, K. . (2022). THE INFLUENCE OF ENTREPRENEURSHIP ASPECTS ON THE SUCCESS OF THE CHIPS INDUSTRY IN MATANG GLUMPANG DUA AND PANTON PUMP.

- International Journal of Social Science, Educational, Economics, Agriculture Research, and Technology (IJSET), 1(7), 337–348.<https://doi.org/10.54443/ijset.v1i7.36>
- likdanawati, likdanawati, Yanita, Y., Hamdiah, H., Nur Ilham, R., & Sinta, I. (2022). EFFECT OF ORGANIZATIONAL COMMITMENT, WORK MOTIVATION AND LEADERSHIP STYLE ON EMPLOYEE PERFORMANCE OF PT. ACEH DISTRIBUS INDO RAYA. International Journal of Social Science, Educational, Economics, Agriculture Research, and Technology (IJSET), 1(8), 377–382.<https://doi.org/10.54443/ijset.v1i8.41>
- Nur Ilham, R., Arliansyah, A., Juanda, R. ., Sinta, I. ., Multazam, M. ., & Syahputri, L. . (2022). APPLICATION OF GOOD CORPORATE GOVERNANCE PRINCIPLES IN IMPROVING BENEFITS OF STATE-OWNED ENTERPRISES (An Emperical Evidence from Indonesian Stock Exchange at the Moment of Covid-19). International Journal of Economic, Business, Accounting, Agriculture Management and Sharia Administration (IJBAS), 2(5), 761–772.<https://doi.org/10.54443/ijebas.v2i5.410>
- Rico Nur Ilham, Irada Sinta, & Mangasi Sinurat. (2022). The Effect Of Technical Analysis On Cryptocurrency Investment Returns With The 5 (Five) Highest Market Capitalizations In Indonesia. Journal of Economics, 11(02), 1022–1035. Retrieved from <http://ejournal.seaninstitute.or.id/index.php/Ekonomi/article/view/481>
- Nur Ilham, R., Likdanawati, L., Hamdiah, H., Adnan, A., & Sinta, I. . (2022). Community Service Activities “Socialization Avoid Study Investment” To The Student Bond Of Serdang Bedagai. Iripitage Journal, 2(2), 61–64.<https://doi.org/10.54443/irpitage.v2i2.312>
- Wayan Mertha, I. ., & Mahfud, M. (2022). LEARNING HISTORY BASED ON WORDWALL APPLICATIONS TO IMPROVE STUDENT LEARNING RESULTS CLASS X IPS IN MA AS'ADIYAH KETAPANG. International Journal of Educational Review, Law And Social Sciences (IJERLAS), 2(5), 507–612.<https://doi.org/10.54443/ijerlas.v2i5.369>
- Mahfud, M., Yudiana, IK, & Sariyanto, S. (2022). HISTORY OF BANYUWANGI KALIKLATAK PLANTATION AND ITS IMPACT ON SURROUNDING COMMUNITIES. International Journal of Educational Review, Law And Social Sciences (IJERLAS), 3(1), 91–104.<https://doi.org/10.54443/ijerlas.v3i1.492>
- Mahfud et all (2021). UTILIZING THE USING LAWON RESIDENTIAL TRADITION AS A SOURCE OF LEARNING LOCAL HISTORY IN HIGH SCHOOLS IN BANYUWANGI. Scientific Development Media Vol.16 No.3 October 2021.<http://ejurnal.binawakya.or.id/index.php/MBI/article/view/1294/pdf>
- Sinta, I., Nur Ilham, R. ., Authar ND, M. ., M. Subhan, & Amru Usman. (2022). UTILIZATION OF DIGITAL MEDIA IN MARKETING GAYO ARABICA COFFEE. IRPITAGE JOURNAL, 2(3), 103–108.<https://doi.org/10.54443/irpitage.v2i3.467>
- Nur Ilham, R., Arliansyah, A., Juanda, R. ., Sinta, I. ., Multazam, M. ., & Syahputri, L. . (2022). APPLICATION OF GOOD CORPORATE GOVERNANCE PRINCIPLES IN IMPROVING BENEFITS OF STATE-OWNED ENTERPRISES (An Emperical Evidence from Indonesian Stock Exchange at the Moment of Covid-19). International Journal of Economic, Business, Accounting, Agriculture Management and Sharia Administration (IJBAS), 2(5), 761–772.<https://doi.org/10.54443/ijebas.v2i5.410>