

## RELATIONSHIP OF KNOWLEDGE WITH OSTEOPOROSIS PREVENTION PREVENTED BY LANS IN WORKING AREA OF THREE RUNGGU HEALTH CENTER KECAMATAN PURBA, KABUPATEN SIMALUNGUN IN 2020

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### *Abstract*

*Elderly who lack knowledge of osteoporosis and inadequate efforts have a higher risk for increasing the degree of osteoporosis, by increasing knowledge of the elderly about osteoporosis can prevent the increase in osteoporosis. The study wanted to examine the Relationship between Knowledge and Osteoporosis Prevention by the Elderly in the Work Area of the Tiga Runggu Public Health Center, Purba District, Simalungun Regency in 2020. The design of this study was a cross-sectional type of research conducted in August - October 2020. The population and samples in this study were Patients with diabetes mellitus in the work area of the Tiga Runggu Public Health Center, Purba District, Simalungun Regency in 2020, as many as 30 people. The majority of respondents had good knowledge, namely 18 people, while the minority had less knowledge, namely 12 people. The majority of osteoporosis prevention in good respondents was 17 people, while the prevention of osteoporosis in respondents was less, namely as many as 13 people. From the results of the cross-table chi-square test of knowledge with osteoporosis prevention, the p value is 0.035 < 0.05. It can be concluded that knowledge has a relationship in the prevention of osteoporosis in the elderly in the work area of the Tiga Runggu Public Health Center, Purba District, Simalungun Regency in 2020. This study can provide guidelines and motivate osteoporosis clients in preventing and providing additional information for patients and their families to carry out control. For Puskesmas, this research provides input and benefits for health care institutions, especially in nursing to improve services in osteoporosis management, especially in maintaining the health conditions of the elderly with osteoporosis prevention efforts.*

**Keywords:** Knowledge, Osteoporosis Prevention

### INTRODUCTION

Elderly (Elderly) as the final stage of the life cycle is a normal developmental stage that will be experienced by every individual who has reached that old age and is a fact that cannot be prevented (Stanley, 2006). Individually, at the age of over 55 years there is a natural aging process which will later cause physical, mental, social, economic, and psychological problems (Nugroho, 2000).

One of the health problems that need serious attention in old age is osteoporosis. Osteoporosis or porous bone is a disease characterized by reduced bone mass density and damage to the microarchitecture of bone tissue which results in brittle bones and break easily (Siagian, 2004). In this disease the bones become brittle and eventually break, just like other chronic diseases, show no early symptoms, and are not diagnosed until a fracture occurs (Lane, 2001). The causes of osteoporosis include low estrogen in women, low physical activity, lack of sun exposure, drugs that reduce bone mass, old age and low calcium intake (Klinikmedis, 2008). This is proven by the low average consumption of

calcium in Indonesia, which is only 254 mg per day from 1000-1200 mg per day according to international standards (Ministry of Health, 2005).

According to the World Health Organization (WHO 1994), the incidence of fractures due to osteoporosis worldwide has reached 1.7 million people and it is estimated that this number will continue to increase to 6.3 million people in 2050 and 71% of these incidents will exist in developing countries. In Indonesia, 19.7% of the elderly or around 3.6 million people suffer from osteoporosis (Klinikmedis, 2008). Five provinces with a higher risk of osteoporosis are South Sumatra (27.7%), Central Java (24.02%), Yogyakarta (23.5%), North Sumatra (22.82%), East Java (21.42%) , East Kalimantan (10.5%) (Ministry of Health, 2005). Osteoporotic fractures have become a threat, almost 24% of elderly who experience hip fractures die in the first year, while 50% have a risk of being unable to carry out lifelong activities, and 25% require long-term care and need large funds and are not will be able to live without the help of others (Lane, 2001 and Yatim, 2000).

According to Notoadmodjo (2005), the knowledge possessed by a person affects his behavior, the better a person's knowledge, the better his behavior will be and the knowledge itself is influenced by the level of education, sources of information and experience. Knowledge is the result of using the five senses based on intuition and chance, authority and authority, tradition, and public opinion (Efendy, 2006). According to Soejoeti (2005 in Kristina et al, 2008), one of the factors that causes change, understanding, attitude and behavior of a person, so that a person is willing to adopt a new behavior, is psychological readiness, which is determined by the level of knowledge. Also explained by Green et al (2000 in Kristina et al, 2008), that knowledge is one of the predisposing factors for an attitude to become an action.

## LITERATURE REVIEW

### Knowledge

According to (Notoatmodjo, 2010), knowledge is the result of knowing, and this occurs after people sense a particular object. Sensing occurs through the five human senses, namely the senses of sight, hearing, smell, taste and touch. Most of human knowledge is obtained through the eyes and ears. The content of the literature review is a description/foundation of scientific theories related to the subject matter of the study/research, written in Times New Roman 12 font. All theoretical sources cited in this chapter must be listed in the bibliography.

### Osteoporosis

Osteoporosis is a bone disease characterized by a decrease in bone mass (bone density) as a whole due to the body's inability to regulate the mineral content in the bones and is accompanied by damage to the bone architecture which will result in a decrease in bone strength which in this case is bone loss, so it carries a risk of easy occurrence. fracture. Osteoporosis is a disease that is classified as a silent disease because it does not

show specific symptoms. Symptoms can include pain in the bones and muscles, especially often in the back. Some common symptoms of osteoporosis, ranging from broken bones, increasingly bent spine, decreased height, and back pain (Ministry of Health, 2015).

### Seniors (Elderly)

Aging (getting old) is a process of slowly disappearing the ability of the network to repair itself or replace and maintain its normal function so that it cannot survive infection and repair the damage suffered. The aging process is a continuous (continuous) process that naturally starts from birth and is generally experienced in all living things (Nugroho Wahyudi, 2000). Aging or getting old is a condition that occurs in human life. The process of aging is a lifelong process, not only starting from a certain time, but starting from the beginning of life. Getting old is a natural process, which means that a person has gone through three stages of his life, namely children, adults and old.

## METHOD

This type of research is cross sectional, which is a research design by making observations at the same time (Hidayat.A.A, 2009). The research was carried out in the working area of the Tiga Runggu Community Health Center, Simalungun Regency. The population in this study were all elderly people in the working area of the Tiga Runggu Community Health Center, Simalungun Regency, in 2017 as many as 30 people. The sample is the subject (part) of the population selected in a certain way so that it is considered to be representative of the population (Arikunto, 2010). In this study, the entire population was taken as a sample of 30 people. This study used a questionnaire to collect data. That was done by the researchers themselves. Before the questionnaires were distributed to respondents, the researcher first explained the objectives, benefits and research procedures to be carried out and asked for their willingness to participate as research respondents. The collected data is then processed manually with the following steps, namely the Editing, Coding, Processing (data entry) and Cleaning processes.

## RESULTS AND DISCUSSION

### Contents Results and Discussion

This analysis is to obtain an overview of the frequency distribution of the variables studied. From the univariate analysis performed, the following results were obtained:

**Table 1. Frequency Based Distribution Respondent Demographic Data Relationship between Knowledge and Prevention of Osteoporosis by the Elderly in the Working Area of Tiga Runggu Community Health Center, Purba District, Simalungun Regency in 2020**

No	Demographic Data	F	%
1	<b>Age</b>		
	Early Elderly 55 - 64 years	12	40,0
	Elderly 65 - 70 years	14	46,7
	High Risk Elderly > 70 years	4	13,3
2	<b>Gender</b>		

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	Man	13	43,3
	Woman	17	56,7
3	<b>Education</b>		
	SD	5	16,7
	JUNIOR HIGH SCHOOL	7	23,3
	SENIOR HIGH SCHOOL	11	36,7
	PT	3	10,0
	No school	4	13,3
4	<b>Work</b>		
	Retired Civil Servants/PNS	3	10,0
	Traders/Entrepreneurs	7	23,3
	Farmer	10	33,3
	Private employees	4	13,3
	Laborer	0	0
	Not Working/IRT	6	20,0

From table 1. above it was found that the majority of respondents were aged 65-70 years, namely as many as 14 people, while a minority aged > 70 years, namely as many as 4 people. The majority of female respondents were 17 people, while the male gender minority were 13 people. The majority of respondents have high school education, namely as many as 11 people, while the minority of Higher Education is as many as 3 people. The majority of respondents work as farmers, namely as many as 10 people, while the minority as retired civil servants, namely as many as 3 people.

**Table 2. Frequency Based Distribution Respondents' Knowledge of Osteoporosis in the Work Area of the Tiga Runggu Community Health Center, Purba District, Simalungun Regency in 2020**

No	Knowledge	F	%
1	Not enough	12	40,0
2	Good	18	60,0

From table 2. above it was found that the majority of respondents had good knowledge, namely as many as 18 people, while the minority had less knowledge, namely as many as 12 people.

**Table 3. Frequency Based Distribution Prevention of Osteoporosis in Respondents in the Work Area of the Tiga Runggu Community Health Center, Purba District, Simalungun Regency in 2020**

No	Osteoporosis Prevention	F	%
1	Not enough	13	43,3
2	Good	17	56,7

From table 3. above it was found that the majority of osteoporosis prevention in good respondents, namely as many as 17 people, while the minority of osteoporosis prevention in respondents were less, namely as many as 13 people.

Bivariate analysis was carried out to see the relationship between the independent variables and the dependent variable. From the bivariate analysis using the chi-square test, the following results can be obtained:

**Table 4. Cross Table of the Relationship between Knowledge and Osteoporosis Prevention by the Elderly in the Work Area of the Tiga Runggu Health Center, Purba District, Simalungun Regency in 2020**

No	Knowledge	Osteoporosis Prevention				Total		p-value
		Not enough		Good		F	%	
		F	%	F	%			
1	Not enough	8	26,7	4	13,3	12	40	0.035
2	Good	5	16,7	13	43,3	18	60	
Total		13	43,4	17	56,7	30	100	

From the results of table 4. above it can be seen that of the 12 respondents (40%) who lack knowledge, 8 people (26.7%) are lacking in preventing osteoporosis while 4 people (13.3%) are good at preventing osteoporosis. Of the 18 respondents (60%) who had good knowledge, 5 people (16.7%) were lacking in preventing osteoporosis while 13 people (43.3%) were good in preventing osteoporosis.

From the results of the cross-table chi-square test of knowledge and prevention of osteoporosis, the p-value is 0.035 <0.05. It can be concluded that knowledge has a relationship in preventing osteoporosis in the elderly in the working area of the Tiga Runggu Health Center, Purba District, Simalungun Regency in 2020.

### Contents of Discussion Results

In accordance with the research objectives and hypotheses proposed in this study. So the discussion of research results is directed at the relationship between the independent variable (knowledge) and the dependent variable (osteoporosis prevention). Based on the results of the Chi-Square test there is a significant relationship (p=0.035) between knowledge and prevention of osteoporosis in the elderly in the working area of Tiga Runggu Health Center, Purba District, Simalungun Regency in 2020.

Elderly people (elderly) are at risk of suffering from osteoporosis, so every fracture in the elderly needs to be assumed to be osteoporosis, especially if it is accompanied by a history of mild trauma and health such as the eyes, heart and other organ functions. At the age of 60-70 years, more than 30% of women suffer from osteoporosis and the incidence increases to 70% at the age of 80 years and over this is related to estrogen deficiency during menopause and decreased bone mass due to the aging process. In men osteoporosis is more due to the process of old age so that the incidence is not as much as women.

Elderly women with a good level of knowledge, 92.9% took good precautions and 7.1% took less precautions, meanwhile, aged women whose level of knowledge was lacking was 58.3% with good precautions and 41.7% is less precaution. The results of the statistical analysis showed that there was a significant relationship between the level of knowledge of osteoporosis and the prevention of osteoporosis in Jati Village (p<0.05). The results of this study are comparable to research conducted by Maha in Medan Selayang District, Medan in 2009 which found that there was a significant relationship between the level of knowledge and prevention of osteoporosis with a value of p = 0.004 (p <0.05).

## CLOSING

### Conclusion

Based on the results of the research that has been carried out and described in the discussion that was exposed in the previous chapter, the researcher can provide the following conclusions:

1. The majority of respondents have good knowledge, namely as many as 18 people, while the minority have less knowledge, namely as many as 12 people.
2. The majority of prevention of osteoporosis in good respondents, namely as many as 17 people, while prevention of osteoporosis in less respondents, namely as many as 13 people.
3. From the results of the cross-table chi-square test of knowledge and prevention of osteoporosis, the p-value is  $0.035 < 0.05$ . It can be concluded that knowledge has a relationship in preventing osteoporosis in the elderly in the working area of the Tiga Runggu Health Center, Purba District, Simalungun Regency in 2020

### Suggestions and Acknowledgments

#### 1. For Respondents

This research can provide guidance and motivation for osteoporosis clients in prevention and provide additional information for patients and families carry out the control.

#### 2. For health centers

Provide input and benefits for health service institutions, especially in nursing to improve services in the management of osteoporosis, especially in maintaining the health condition of the elderly by preventing osteoporosis

#### 3. For Educational Institutions

To add references to medical surgical nursing in the prevention of osteoporosis by increasing knowledge of elderly people with osteoporosis and can be used as a form of tri dharma of higher education lecturers by providing counseling.

#### 4. For Further Research

This research can also be used as a guideline in conducting further research on knowledge about prevention of osteoporosis in the elderly

## REFERENCES

- Anggraini,dkk. (2009). Faktor- faktor yang berhubungan dengan kejadian hipertensi pada pasien yang berobat di poliklinik dewasa puskesmas Bangkinang. Pekanbaru: FK Unri.
- Arlinda. (2004). Kompilasi Statistik Kesehatan. Medan: Bagian ilmu kesehatan masyarakat/ Ilmu kedokteran komunitas/ Ilmu kedokteran pencegahan. FK USU.

- Ashar, F. (2008). Pengaruh pengetahuan dan upaya lansia terhadap derajat osteoporosis di wilayah kerja kecamatan Bangkalan Kab. Bangkalan. Dibuka tanggal 18 Feb 2009 dari <http://adln.lib.unair.ac.id>.
- BPS Kota Medan. (2008). Kecamatan Medan Selayang dalam angka. Medan : BPS dan Badan Perencanaan Pembangunan Daerah Kota Medan.
- 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>.
- Dahlan, M. (2004). Statistik untuk kedokteran dan kesehatan. Jakarta : PT. Arkans.
- Dempsey & Dempsey. (2002). Riset Keperawatan : Buku ajar & latihan. Edisi 4. Jakarta : EGC.
- Depdiknas. (2005). Kamus Besar Bahasa Indonesia. Jakarta : Balai Pustaka.
- Depkes. (2004). Kecenderungan osteoporosis di Indonesia 6 kali lebih tinggi dibanding negeri Belanda. Dibuka tanggal 16 Februari 2009 dari <http://www.depkes.go.id>.
- Depkes. (2005). 1 dari 3 wanita dan 1 dari 3 pria memiliki kecenderungan menderita osteoporosis. Dibuka tanggal 16 Februari 2009 dari <http://www.depkes.go.id>.
- Effendy, R. Konsep Dasar Pengetahuan. Dibuka tanggal 14 Maret 2009 dari 3\_SMA\_Sosio\_1.PDF.Adobe Reader.
- Ekawati,dkk. (2008). Peningkatan pengetahuan, sikap dan perilaku terhadap rokok pada siswa SMU di kelurahan Penatih. Denpasar: Program Studi Ilmu Kesehatan Masyarakat, Universitas Udayana.
- 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>.
- 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>.
- Gomez, J. (2006). Awas pengeroposan tulang! : Bagaimana menghindari dan menghadapinya. Jakarta : Arcan.
- Hartono, M. (2000). Mencegah & mengatasi osteoporosis. Jakarta. Puspa Swara.
- 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 Future of Money. *International Journal of Suplly Management*.Volume 8 No.5 August 2019.
- 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 Suplly Management*.Volume 8 No.6 December 2019.

- Istiany, A. (2006). Penanggulangan risiko terkena osteoporosis akibat depresi dikalangan penduduk lansia NAD pasca tsunami. Jakarta : Jurusan Ilmu kesejahteraan keluarga, FT, UNJ.
- Klinik Medis. (2008). Peningkatan usia harapan hidup. Dibuka tanggal 16 Februari 2009 dari <http://www.klinikmedis.com>.
- Kristina, dkk. (2008). Perilaku pengobatan sendiri yang rasional pada masyarakat kecamatan Depok dan Cangkringan kabupaten Sleman. Jakarta : Majalah farmasi Indonesia.
- Lane, N. (2001). Lebih lengkap tentang : Osteoporosis ; Petunjuk untuk penderita dan langkah- langkah penggunaan bagi keluarga. Jakarta : Raja Grafindo Persada.
- 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>.
- 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>.
- Mahfud et all (2020). Developing a Problem-Based Learning Model through E-Learning for Historical Subjects to Enhance Students Learning Outcomes at SMA Negeri 1 Rogojampi. IOP Conf. Series: Earth and Environmental Science 485 (2020) 012014 doi:10.1088/1755-1315/485/1/012014.
- Mahfud et all (2021). PEMANFAATAN TRADISI RESIK LAWON SUKU USING SEBAGAI SUMBER BELAJAR SEJARAH LOKAL PADA SMA DI BANYUWANGI. Media Bina Ilmiah Vol.16 No.3 Oktober 2021. <http://ejurnal.binawakya.or.id/index.php/MBI/article/view/1294/pdf>.
- Mahfud, M., Yudiana, I. K., & 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>.
- 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/morfai.v1i1.11>.
- Meilani, A. (2007). Hubungan pengetahuan dengan upaya pencegahan dini osteoporosis wanita usia 40- 60 tahun di Perumnas Simalingkar Medan. Medan : PSIK USU.
- National Osteoporosis Foundation. (2008). Prevention of osteoporosis. Dibuka tanggal 6 mei 2009 dari <http://www.NOI.org>.
- Notoadmodjo, S. (2002). Metodologi penelitian kesehatan. Jakarta : Rineka cipta.
- Notoadmodjo, S. (2005). Promosi kesehatan Teori dan aplikasi. Jakarta : Rineka cipta.
- Notoadmodjo, S. (2007). Promosi kesehatan dan ilmu perilaku. Jakarta : Rineka cipta.



- Nugroho, W. (2000). Keperawatan Gerontik. Jakarta : EGC.
- 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 (JATS-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>.
- 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 Moment of Covid-19). *International Journal of Economic, Business, Accounting, Agriculture Management and Sharia Administration (IJEBAS)*, 2(5), 761–772. <https://doi.org/10.54443/ijebas.v2i5.410>.
- 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>.
- Nursalam (2003). Konsep dan penerapan metodologi penelitian ilmu keperawatan : pedoman skripsi, tesis, dan instrument penelitian. Edisi pertama. Jakarta : Salemba Medika.
- Pemko Medan. (2008). Selayang Pandang : Kependudukan. Dibuka tanggal 17 Februari 2009 dari <http://www.pemkomedan.go.id>.
- Polit & Hungler. (1995). *Nursing Research. 5th Edition. Principals and Methods.* Philadelphia : JB Lipincott.
- Raharjo, T. (2008). Pengaruh iklan makanan ringan terhadap sikap konsumtif anak- anak SD. Lampung: Ilmu komunikasi, FISIP, Unila.
- 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>.
- Ramadhitya, F. (2009). Antara resep dokter dan resep alternatif. Dibuka tanggal 26 Juni 2009 dari <http://www.netsains.com>
- Renny. (2007). Ketika pengobatan alternatif menjadi pilihan. Dibuka tanggal 26 Juni 2009 dari <http://www.pikiran-rakyat.com>
- 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. *Jurnal*

- Ekonomi, 11(02), 1022–1035. Retrieved from <http://ejournal.seaninstitute.or.id/index.php/Ekonomi/article/view/481>.
- Roesma, S. (2006). Pencegahan Dini Osteoporosis : Pedoman bagi petugas UKS & Guru Pendidikan Jasmani dan Kesehatan. Jakarta : Depkes.
- 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 EMPIRICAL EVIDENCE FROM INDONESIA GOVERNMENT. MORFAI JOURNAL, 1(1), 36–48. <https://doi.org/10.54443/morfai.v1i1.14>.
- Santoso, D. (2007). Kontradiksi konsumsi kopi antara manfaat dan risiko kesehatan. Dibuka tanggal 27 Juni 2009 dari <http://www.sportindo.com>
- Siagian, A. (2004). Besi berperan mencegah osteoporosis. Dibuka tanggal 16 Februari 2009 dari <http://www2.kompas.com>.
- 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>.
- 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/morfai.v1i1.12>.
- Stanley, M. (2006). Buku ajar keperawatan gerontik. Edisi 2. Jakarta : EGC.
- Sudjana. (1995). Metodologi Statistik. Edisi 3. Bandung : Tarsito.
- Suhartono, S. (2005). Filsafat Ilmu Pengetahuan. Yogyakarta : Ar- Ruzz Media.
- Swamurti, A. (2008). 2,7 juta orang lanjut usia terlantar. Dibuka tanggal 16 Februari 2009 dari <http://www.tempointeraktif.com>.
- Wayan Mertha, I. ., & Mahfud, M. (2022). HISTORY LEARNING 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>.
- WHO. (1994). Assesment of fracture risk and its application to screening for postmenopausal osteoporosis. Switzerland : WHO.
- Yatim, F. (2000). Osteoporosis (Penyakit Kerapuhan Tulang) pada manula. Jakarta : Yayasan Obor Indonesia.
- 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 (IJEBA), 2(2), 227–236. <https://doi.org/10.54443/ijevas.v2i2.191>.