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The Effect of Acupressure Therapy on Low Back Pain in the Elderly in Korobono Village, Southeast Pamona District

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ABSTRACT

One of the problems that often arise in the elderly who experience musculoskeletal system disorders is low back pain. Low back pain results in lumbar tenderness, back muscle spasms, limited back movement and decreased back muscle strength. Management of low back pain can be done with complementary therapies that have no side effects and non-pharmacology, namely Acupressure which can reduce the pain scale. The purpose of this study was to analyze the effect of Acupressure Therapy on Low Back Pain in the Elderly. This research method uses a quasi experiment pre-post test design with control group. The sampling technique used a total population with a sample of 22 respondents (11 intervention group and 11 control group). Instrument using a questionnaire. Statistical tests using the General Linear Model test. The statistical test results obtained a p value of 0.001 <0.005, it can be concluded that there is a significant difference between the intervention group and the control group on low back pain in the elderly in Korobono Village. Suggestions in this study as input so that acupressure therapy can be developed and can be implemented as a program in services to the elderly.

KEYWORDS *Acupressure Therapy, Low Back Pain, Elderly*

INTRODUCTION

The number of elderly population in Asia is ranked first in the world. In 2015 the Asian elderly population amounted to 508 million or about 56% of the total world elderly population. In the Asian region, Thailand and Singapore in 2018 had a very high number of elderly people with a percentage of 11.9% (Thailand) and 11.5% (Singapore) aged 65 years and over. This number makes the Asian region the first to have a high number of elderly populations (World Bank, 2019). Indonesia is a developing country that has a high number of elderly people, in 2018 amounting to 9.3%, or 22.4 million people (BPS, 2018). In 2020, there were 27.08 million elderly people, it is estimated that in 2025 there will be 33.69

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million elderly people and it is predicted that in 2050 Indonesia will experience a high increase in the number of elderly people compared to countries in the Asian region (Kemenkes RI, 2018).

Systems that undergo changes are the integument system, digestive system, respiratory system, urinary system, reproductive system and innervation system (Padila, 2017). One of the problems that often arise in the elderly who experience musculoskeletal system disorders is low back pain.

Low back pain is the most frequent skeletal muscle disorder among other skeletal muscle disorders. Changes in the musculoskeletal system in the elderly include connective tissue (collaf=gen and elastin), cartiligo, muscles and joints. Low back pain is a feeling of pain in the area around the lumbosacral and sacroiliac. In theory, low back pain can be experienced by anyone, at any age, but related to certain etiologic factors low back pain is more common at an older age (Priyani, 2018).

Management of low back pain can be done in two events, namely pharmacologically and non-pharmacologically. Pharmacologically, patients can be given analgesics and NSAIDs (Non-Steroidal Anti-Inflammatory Drugs) these drugs are given with the aim of reducing inflammatory pain, muscle relaxants are useful for acute low back pain especially when the cause of low back pain is muscle spasm. Taking chemical drugs in the long term can interfere with kidney, liver and digestive function (Sengkey, 2018).

Complementary therapy that has no side effects and non-pharmacology is Acupressure which can reduce the pain scale. Acupressure action by applying physical pressure at several points on the body. Acupressure is proven to reduce back pain (Kurniyawan 2016).

Based on preliminary studies conducted by researchers by conducting interviews with midwives and posyandu cadres in Korobono Village, Pamona Tenggara District, 22 out of 60 elderly people complained of low back pain. The results of interviews with 5 elderly people who experienced low back pain said that the pain felt was very disturbing to daily activities.

Health efforts that were originally focused on efforts to cure sufferers gradually developed towards the integration of comprehensive health efforts. Therefore, health development concerning health improvement efforts (promotive) helps individuals, groups and communities to maintain and protect their health, disease prevention (preventive) helps to be able to recognize and find out diseases that may occur in individuals, groups and communities, cure diseases (curative) complementary therapy is one way to cure diseases that have little side effects, one of which is the provision of Acupressuree therapy for the elderly with low back pain, and health recovery (rehabilitative) must be carried out in a comprehensive, integrated and sustainable manner and carried out together between nurses, families, and communities (Ministry of Health RI, 2012).

From the above background, researchers are interested in conducting research on the effect of Acupressure Therapy on back pain in the elderly in Korobono Village, Southeast Pamona District.

RESEARCH METHODS

This research method uses a *quasi experiment pre-post test* design *with control group*. The sampling technique used a total population with a sample of 22 respondents (11 intervention group and 11 control group). The instrument used a questionnaire. Statistical tests using the *General Linear Model* test.

RESULTS AND DISCUSSION

Univariate Analysis Results

Table1 . Frequency Distribution of Respondent Characteristics Based on Age, gender and occupation in the elderly (n = 22) in Korobono village, Pamona Tenggara sub-district.

Variables	Respondents	
	Frequency (Person)	Percentage (%)
1. Age		
Elderly (60 - 74 years old)	19	87%
Old Age (75-90 years)	3	13%
Very Old Age > 90 years)	0	0%
2. Gender		
Female	13	59,1%
Male	9	40,1%
3. Jobs		
Work	20	90.9%
Not Working	2	9,1%

Based on Table 1. shows that from the age variable, the most respondents are elderly, namely 60 - 74 years old (87%). then in the gender variable, the most are female, namely 13 people (59.1%). While in the employment variable, the most respondents were working 20 people (90.9%).

Table 2. Frequency Distribution of Low Back Pain in the Intervention Group (n = 11) and Control Group (n = 11) in the elderly in Korobono village, Pamona Tenggara sub-district.

Variables	Intervention Group		Control Group	
	Frequency (Person)	Percentage (%)	Frequency (Person)	Percentage (%)
1. Pretest Low Back Pain				
No Pain				
Mild Pain	0	0%	0	0%
Moderate Pain	0	0%	0	0%
Severe Pain	6	54,5%	7	63,6%
	5	45,5%	4	36,4%
2. First week low back pain				
No Pain	0	0%	0	0%
Mild Pain	1	9,1%	0	0%

Moderate Pain	10	90,9%	10	90,9%
Severe Pain	0	0%	1	9,1%
3. Second week low back pain				
No Pain	0	0%	0	0%
Mild Pain	1	9.1%	0	0%
Moderate Pain	10	90,9%	6	54,5%
Severe Pain	0	0%	5	45,5%
4. Third week low back pain				
No Pain	0	0%	0	0%
Mild Pain	10	90,9%	0	0%
Moderate Pain	1	9,1%	7	63,6%
Severe Pain	0	0%	4	36,4%

Based on table 2 The results of the study at the beginning of the study in the intervention group there were 6 people (54.5%) of the elderly experiencing pain with a moderate pain scale. Whereas in the control group it was not much different from the intervention group, there were 7 people (63.6%) of the elderly experiencing moderate pain.

The first week of Acupressure therapy, the frequency of low back pain in the Intervention group was 10 people (90.9%) of elderly people experiencing pain with moderate pain scale. In the second week of Acupressure therapy in the intervention group, the frequency value of low back pain was no difference from the first week, there were 10 people (90.1%) elderly people experiencing pain with moderate pain scale. However, in the third week after Acupressure therapy there were 10 people (90.9%) experiencing pain with mild pain scale.

In contrast to the control group that was not given any action, in the first week there were 10 people (90.9%) elderly people experiencing pain with a moderate pain scale. However, in the second week of the control group there were 6 people (54.5%) elderly who experienced moderate pain. In the third week there were 7 people (63.6%) of the elderly who experienced pain with a moderate pain scale.

Bivariate Analysis

Table 3. Analysis of Differences in Lower Back Pain Before and After Acupressure Therapy in the Intervention Group (n = 11) and Control Group (n = 11) in the Elderly in Korobono Village, Southeast Pamona District.

Intervention Group	SD	Mean	P-Value
Intervention Group Pretest	0,831	1,091	0,001
First week of Intervention group			
Intervention Group Pretest	0,874	2,182	0,001
Week Two of the Intervention			

group			
Intervention Group Pretest Week three Intervention group	0,688	3,455	0,001
Control Group			
Pretest Control group First week of Control group	0,302	0,091	0,341
Pretest Control group Second week of Control group	0,809	-0.364	0,167
Pretest Control group Third week of Control group	0,751	0,182	0,441

Based on Table 3. shows that from the statistics on the pre-test of the intervention group and the first week after the Acupressure Therapy intervention in the elderly it is known that the Sig. (2 - tailed) of 0.001 <0.05. The statistical test of the pre-test of the intervention group and the second week after the Acupressure therapy intervention in the elderly is known that the Sig value. (2 - tailed) of 0.001 <0.05. The statistical test of the pre-test of the Intervention Group and the third week after the Acupressure therapy intervention in the elderly is known that the Sig. (2-tailed) of 0.01 <0.05. As for the control group, from the results of the statistical test of the pre-test of the Control group and the first week of the control group that was not intervened by Acupressure Therapy in the elderly, it is known that the Sig value. (2 - tailed) of 0.341> 0.05 . The results of the statistical test of the pre-test of the control group and the second week of the control group that was not intervened by Acupressure therapy in the elderly were known that the Sig value. (2 - tailed) of 0.167> 0.05. The results of the statistical test of the pre-test of the control group and the third week of the control group that was not intervened by Acupressure Therapy in the elderly were known that the Sig value. (2 - tailed) of 0.441> 0.05.

The average value in the intervention group experienced a considerable increase in the first week the mean value was 1.091, the second week the mean value was 2.182 and in the third week the mean value was 3.455. This shows that there is a strong influence of Acupressure therapy on low back pain. While in the Control group the average value of the first week mean value was 0.091, in the second week the mean value decreased to -0.369 and the third week the mean value was 0.182. This shows that in the control group there is no effect on low back pain because no Acupressure Therapy is performed on the elderly.

Table 4. Results of Analysis of the mean value of low back pain in the intervention group (n = 11) and the control group (n = 11) in the elderly in Korobono Village, Southeast Pamona District.

Variables	**Std. Deviation**	**Mean**	**P - Value (Sig)**
Intervention Group	1,470	5,52	0,001
Control group	0,553	6,70	

Based on table 4. shows the statistical test results of the average value with a P-value of 0.001 <0.05, so it can be concluded that there is a significant difference between the intervention group and the control group.

Multivariate Analysis Results

Table 5. Test results of the average value of the Lower Back Pain Scale in the intervention group (n = 11) and the Control Group (n = 11) in the Elderly in Korobono Village, Pamona Tenggara sub-district.

Dependent Variable				Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Intervention Group	Bonferroni	First Week	Week Two	1.00*	0,361	0,028	0,09	1,91
			Third Week	2.27*	0,361	0,000	1,36	3,19
		Week Two	First Week	-1.00*	0,361	0,028	-1,91	-0,09
			Third Week	1.27*	0,361	0,004	0,36	2,19
		Third Week	First Week	-2.27*	0,361	0,000	-3,19	-1,36
			Week Two	-1.27*	0,361	0,004	-2,19	-0,36
Control Group	Bonferroni	First Week	Week Two	-0,55	0,304	0,249	-1,32	0,23
			Third Week	-0,18	0,304	1,000	-0,95	0,59
		Week Two	First Week	0,55	0,304	0,249	-0,23	1,32
			Third Week	0,36	0,304	0,724	-0,41	1,14
		Third Week	First Week	0,18	0,304	1,000	-0,59	0,95
			Week Two	-0,36	0,304	0,724	-1,14	0,41

Based on Table 5. shows the results of the Bonferroni test conducted in the intervention group the resulting sig value is <0.05, this states that there is an average difference in the intervention group on low back pain after being given Acupressure therapy. While in the control group it is known that the resulting sig value is> 0.05, this states that there is no average difference in the control group on low back pain.

Bivariate Analysis

Analysis of differences in values before and after Acupressure therapy in the intervention group.

According to (Wong, 2011) *Acupressure* is also called finger prick therapy which is a form of massage that stimulates *Acupressure* points. This therapy can be utilized in the prevention of hypertension, rehabilitation healing, pain relief, and can prevent disease recurrence.

The results of this study are in line with research conducted by Movahedi M, Ghafari S Dkk 2017, regarding the Effect of *Acupressure* on pain severity in female nurses with chronic low back pain, iran *JNursingMidwiferyRes*. The results of the study: there was no significant difference in the average pain

severity score in the pre-intervention phase between groups (P = 0.63), but significant differences were observed immediately, 2 weeks, and 4 weeks after the intervention. Furthermore, the average pain severity score in the intervention group decreased significantly compared to the sham group (P = 0.000) with the conclusion that *Acupressure* at specific points is proven to reduce pain.

This is reinforced by research conducted by Fatimah Tulawazniah 2020, this type of research is prexperiment with a one group pre-test post-test design approach. The test used is the Wilcoxon Test with a significance level of 95%. The average results of low back pain intensity before being given *Acupressure* therapy 4.45 (SD = 1.234) and after being given *Acupressure* therapy 1.25 (SD = 1.020). There is an effect of *Acupressure* therapy on the intensity of low back pain in third trimester pregnant women (p = 0.000).

According to the researcher's assumption, *Acupressure* therapy can be used as a nonmedical treatment, cheap and without side effects in reducing pain. *Acupressure* therapy can be further developed in nursing, especially in community nurses, the elderly have experienced various changes - individual changes, physical decline and others so that nonmedical treatment is very beneficial for them and has no side effects.

Analysis of differences in values before and after without Acupressure therapy in the Control group

In the control group, no therapy was performed. From the results of the *dependent t test* research in the control group, the pre-test value shows that the value in the first week with a P-value of 0.341, so Ho is accepted and Ha is rejected. It can be interpreted that there is no significant difference in the control group. In the second week, the P-value is 0.167, so Ho is accepted and Ha is rejected. This means that there is no significant difference without *Acupressure* therapy in the second week. In the third week, the P-value was 0.441, so H0 was accepted and Ha was rejected. This means that there is no significant difference in average values without *Acupressure* therapy in the third week. In the control group, no therapy was performed, so there was no significant effect on low back pain in respondents.

The results of the analysis of the effect of Acupressure therapy on low back pain in the intervention group and control group in the elderly in Korobono village.

The results of this study showed that the average frequency value in the intervention group after *Acupressure* therapy was 5.52 (SD = 1.470). While the average frequency value in the control group was 6.70 (SD = 0.594). The statistical test results obtained a p value of 0.001 <0.005, it can be concluded that there is a significant difference between the intervention group and the control group on low back pain in the elderly in Korobono Village. This is in line with a Randomized controlled study by Soo Kyoung Kim 2021, regarding *The Effect of*

Auricular Acupressure for chronic Low back pain in elders. The randomized, single-blind, placebo-controlled study was conducted on 51 elderly people with chronic low back pain in south korea from june 2019 to august 2019. The experimental group (n=26) received *Acupressure* therapy, while the placebo control group (n=25) received *Acupressure* therapy but not at points associated with low back pain. Participants received 6 weeks of *Acupressure* therapy in weekly cycles. Statistically significant differences between the 2 groups emerged in visual analog scale (P < 0.001), pain scale (P < 0.001) and *Oswestry Disability Index* (P < 0.001). *Acupressure* therapy can therefore be used as an alternative non-invasive intervention in older adults.

This is also reinforced by research Li-Hua Yang et al 2017, *A Systematic Review and Meta-Analysis of Randomized Controlled Trials: Efficacy of Auricular Acupressure for Cronic Low Back Pain*, in the study a search for randomized controlled trials was conducted in four English and three Chinese electronic databases. Two reviewers independently retrieved relevant studies, assessed methodological quality, extracted data using a standardized data form. Meta-analysis was performed using all time point meta-analysis. Results: A total of 7 trials met the inclusion criteria, 4 of which had a low risk of bias. The findings showed that, for the immediate effect, acupressure had a large and significant effect in improving pain within 12 weeks. As for the follow-up effect, the pooled estimates also showed a promising effect at the 4-week follow-up after the 4-week intervention (standardized mean difference = -1.13, 95% Cl (-1.70, -0.56), P < 0.001.

According to the assumptions of researchers, the application of Acupressure therapy in the elderly with complaints of low back pain is very effective and very useful. Acupressure therapy does not require such expensive costs and also the elderly do not have to take drugs. This is also related to the results of the study above, there is a significant difference between the intervention group and the control group.

Multivariate Analysis

The results of the Bonferroni test analysis carried out in the intervention group the resulting sig value is <0.05, this states that there is an average difference in the intervention group on low back pain after being given *Acupressure* therapy. While in the control group it is known that the resulting sig value is> 0.05, this states that there is no average difference in the control group on low back pain.

This is in line with the theory that *Acupressure* therapy is also called finger prick therapy which is a form of massage that stimulates *Acupressure* points. This therapy can be utilized in the prevention of hypertension, rehabilitation healing, pain relief, and can prevent disease recurrence. In the human body there are general meridians (12 meridians) and special meridians (2 Meridians) that can represent organs in the body, which can launch energy (qi) in the body (Wong, 2011).

This is in line with research conducted by Gusti Ayu Aswitami (2018) with the results of the study showing that there is an effect ($p < 0.05$) of *Acupressure* therapy on low back pain in pregnant women TM III so it can be concluded that *Acupressure* therapy is more effective in reducing the level of low back pain.

From the results of this study, according to researchers, the development of *Acupressure* therapy in a complementary therapy is very important. Data from the Indonesian Ministry of Health, 2018 states that Indonesia is a developing country that has a high number of elderly people, in 2018 it was 9.3%, or 22.4 million people (BPS, 2018). In 2020, there were 27.08 million elderly people, estimated in 2025 as many as 33.69 million elderly people and it is predicted that in 2050 Indonesia will experience a high increase in the number of elderly people compared to countries in the Asian region. With the increase in life expectancy and the number of elderly, the morbidity rate will also increase in the elderly. This is because the elderly will experience changes both physically and socially due to the aging process.

CONCLUSIONS

The results of statistical tests showed that the frequency distribution of low back pain in the control group was measured at the same time as the intervention group, most of which was moderate pain. Statistical test results in the intervention group before and after acupressure therapy there is a significant effect before and after acupressure therapy on low back pain.

REFERENCES

Ayu Tila Setiasih. (2012). Effect of William Flexion Exercise and Core Stabilization Exercise on Myogenic Low Back Pain.

Buruck, G., Tomaschek, A., Wendsche, J., Ochsmann, E., & Dörfel, D. (2019). Psychosocial areas of worklife and chronic low back pain: A systematic review and meta-analysis. BMC Musculoskeletal Disorders, 20(1), 1-16. https://doi.org/10.1186/s12891-019-2826-3

Cahya, I. P. I., Gde, A. A., & Asmara, Y. (2020). Prevalence of Low Back Pain in 2014-2015 at Rsup Sanglah Denpasar. Medika Udayana Journal, 9(6), 35-39. https://ojs.unud.ac.id/index.php/eum

Hadyan, M. F. (2015). Factors That Influence Incidences of Low Back Pain in Public Transportation Drivers. Majority, 4(7), 19-24.

Hasanah, A. N. (2018). Differences in the Effectiveness of Therapy..., ANNISA NOVIA HASANAH, Faculty of Health Sciences UMP, 2018. 1-12.

Hastono, S. P. (2016). Data Analysis in the Health Field. PT Raja Grafindo Persada.

Haumahu, Y., Doda, D. V. D., & Marunduh, S. R. (2016). Risk factors associated with the onset of low back pain in elementary school teachers in Tuminting District. E-Biomedical Journal, 4(2). https://doi.org/10.35790/ebm.4.2.2016.12656

Hoy, D., Brooks, P., Blyth, F., & Buchbinder, R. (2010). The Epidemiology of

low back pain. Best Practice and Research: Clinical Rheumatology, 24(6), 769-781. https://doi.org/10.1016/j.berh.2010.10.002

Hoy, Damian, Bain, C., Williams, G., March, L., Brooks, P., Blyth, F., Woolf, A., Vos, T., & Buchbinder, R. (2012). A systematic review of the global prevalence of low back pain. Arthritis and Rheumatism, 64(6), 2028-2037. https://doi.org/10.1002/art.34347

Iizuka, Y., Iizuka, H., Mieda, T., Tsunoda, D., Sasaki, T., Tajika, T., Yamamoto, A., & Takagishi, K. (2017). Prevalence of chronic nonspecific low back pain and its associated factors among middle-aged and elderly people: An analysis based on data from a musculoskeletal examination in Japan. Asian Spine Journal, 11(6), 989-997. https://doi.org/10.4184/asj.2017.11.6.989

Ikhsan, M. N. (2018). Basic Science of Acupressure and Moxibustion (MNI (ed.)). Bhimaristan Press. https://www.google.co.id/books/edition/Dasar_Ilmu_Akupresur_dan_Moksibasi/Ffu2DwAAQBAJ?hl=id&gbpv=1&dq=Ikhsan+,+2018+Acupressure&pg=PP2&printsec=frontcover

Kim, S. K., & Park, H. (2021). The Effect of Auricular Acupressure for Chronic Low Back Pain in Elders: A Randomized Controlled Study. https://doi.org/https://doi.org/10.1097/hnp.0000000000000457

Luh Putu Sentania Widhi Permana Putri, N., Wayan Suarniti, N., & Nyoman Budiani, N. (2020). THE EFFECT OF ACUPRESSURE AT BLADDER POINT 23 ON THE INTENSITY OF LOW BACK PAIN IN THIRD TRIMESTER PREGNANT WOMEN AT UPTD PUSKESMAS I NORTH DENPASAR. http://jurnalmu.poltekkes-mataram.ac.id/index.php/jurnalmu

Manchikanti, L., Singh, V., Falco, F. J. E., Benyamin, R. M., & Hirsch, J. A. (2014). Epidemiology of low back pain in Adults. Neuromodulation, 17(S2), 3-10. https://doi.org/10.1111/ner.12018

Mary A, N., & McEwen, M. (2019). Community and Family Health Nursing (J. Sahar, A. Setiawan, & N. M. Riasmini (eds.); 1 st Indon). Elsevier.

Meucci, R. D., Fassa, A. G., & Xavier Faria, N. M. (2015). Prevalence of chronic low back pain: Systematic review. Revista de Saude Publica, 49, 1-10. https://doi.org/10.1590/S0034-8910.2015049005874

Ono, R., Yamazaki, S., Takegami, M., Otani, K., Sekiguchi, M., Onishi, Y., Hayashino, Y., Kikuchi, S. I., Konno, S. I., & Fukuhara, S. (2012). Gender difference in association between low back pain and metabolic syndrome: Locomotive syndrome and health outcome in aizu cohort study (LOHAS). Spine, 37(13), 1130-1137. https://doi.org/10.1097/BRS.0b013e31824231b8

Padila. (2017). Gerontic Nursing textbook (Mold II). Nuha Medika.

Patrianingrum, M., Oktaliansah, E., & Surahman, E. (2015). Prevalence and Risk Factors of Low Back Pain in Anesthesiology Work Environment of Dr. Hasan Sadikin Hospital Bandung. Journal of Perioperative Anesthesia, 3(1), 47-56. https://doi.org/10.15851/jap.v3n1.379

Purwanti, D., & Rasyid, A. (2014). In the Madello Health Center Working Area. 5, 8-13.

Purwata, T. E., Sadeli, H. A., Yudiyanta, Anwar, Y., Amir, D., Asnawi, C., Surot, Rahmawati, D., Partoatmodjo, L., Aulina, S., Widyadarma, P. E., Dalhar, M.,

Mutiawati, E., Runtuwene, T., Meliala, L., Suryamihardja, A., Permadi, A., Sitorus, F., Gunarto, U., ... Mandua, Y. (2015). Characteristics of neuropathic pain in Indonesia: A hospital based national clinical survey. Neurology Asia, 20(4), 389-394.

Riningrum, H. (2016). The Effect of Work Attitude, Age, and Length of Service on Subjective Complaints of Low Back Pain in Garment Sewing Workers of PT APAC Inti Corpora Semarang Regency. Semarang State University Thesis.

Septiawan, H. (2014). Factors associated with low back pain among construction workers at Pt Mikroland Semarang. Unnes Journal of Public Health, 2(2).

Silviyani. (2013). The Relationship of Working Position of Elderly Farmers with the Risk of Lower Back Pain in the Work Area of Sumberjambe Health Center, Jember Regency. Scientific Article of Student Research Results, 1-8.

Sjølie, A. N. (1998). The epidemiology of low back pain in the rest of the world. In Spine (Vol. 23, Issue 8, pp. 960-961). https://doi.org/10.1097/00007632-199804150-00026

Smith, J. A., Hawkins, A., Grant-Beuttler, M., Beuttler, R., & Lee, S. P. (2018). Risk Factors Associated With Low Back Pain in Golfers: A Systematic Review and Meta-analysis. Sports Health, 10(6), 538-546. https://doi.org/10.1177/1941738118795425

Tulwazniah, F. (2020). The effect of acupressure therapy on low back pain in trimester iii pregnant women in the working area of the umbung sekaki health center, pekanbaru city. http://repository.pkr.ac.id/id/eprint/1121

Utami, C. (2016). 1 Udayana University. Integration of Comfort Theory/Model (Kolcaba) in High Risk Nursing Room, September, 1-29.

Wong, M. F. (2011). Acuyoga Combination of Acupressure + Yoga (S. Ariesta (ed.); Print I). Nigawa Swadaya.

World Bank. (2019). Thailand and Singapore's Elderly Population Above World Average. 2024.

worte F, B., & Colleagues. (2012). Non Specific Low Back Pain. Published Their Atudy in The Lancet.

Yang, L. H., Duan, P. B., Hou, Q. M., Du, S. Z., Sun, J. F., Mei, S. J., & Wang, X. Q. (2017). Efficacy of Auricular Acupressure for Chronic Low Back Pain: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Evidence-Based Complementary and Alternative Medicine, 2017. https://doi.org/10.1155/2017/6383649.