

THE EFFECTIVENESS LING TIEN KUNG EXERCISE ON SELF EFFICACY AND BLOOD PRESSURE IN HYPERTENSION PATIENTS

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Abstract

Background: Hypertension is a common chronic disease in the community that requires prevention through a healthy lifestyle and high Self Efficacy to manage it effectively. Ling Tien Kung exercise therapy, a non-pharmacological approach for hypertension, involves body movements focusing on two core exercises: empet-empet anus and jinjit-jinjit. This study aims to assess the impact of Ling Tien Kung exercise therapy on Self Efficacy and blood pressure in hypertensive patients.

Methods: The research employs a pre-experimental one-group pre-post test design, with 45 respondents selected through purposive sampling. Conducted twice a week over three weeks, data were collected using the General Self Efficacy Scale (GSES) questionnaire and a blood pressure observation sheet.

Results: Analysis with the Wilcoxon Signed Rank Test revealed significant improvements in Self Efficacy and reductions in blood pressure before and after the intervention ($p\text{-value} = 0.000 < 0.05$).

Conclusion: Thus, it can be concluded that Ling Tien Kung exercise therapy positively affects Self Efficacy and blood pressure in hypertensive patients, suggesting it can be a valuable complementary therapy for managing hypertension.

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1. Introduction

Hypertension is an increase in blood pressure that shows results of more than 140/90 mmHg after two measurements with an interval of five minutes at rest.(1) Hypertension increases the risk of secondary diseases such as heart, brain, and kidney damage. According to World Health Organization, hypertension is the leading cause of death in the world, with around 1.13 billion sufferers.(2) Less than one in five hypertensive patients receive adequate treatment. If not treated properly, hypertension can cause serious complications such as myocardial infarction, stroke, kidney failure, and death.(3) According to the initial analysis of the 2018 Riskesdas, the prevalence of hypertension in Indonesia increased to 34.1% from 26.5% in 2013. West Java has the second highest prevalence after South Kalimantan with 39.6%, while Papua has the lowest prevalence at 22.2%.(4) The 2018 Riskesdas data shows that the prevalence of hypertension in DKI Jakarta is 33.43% based on measurement results and 10.17% based on doctor's diagnosis in people over 18 years old. The DKI Jakarta Provincial Health Office recorded 923,451 cases of hypertension in 2021. Based on blood pressure measurements of patients aged ≥ 15 years in 2022, the Depok City Health Office estimates that 78.10% suffer from hypertension.(5)

Implementing a healthy lifestyle and controlling risk factors can help prevent hypertension and its complications. Hypertension can be prevented by maintaining body weight within the normal range, regulating diet by consuming foods low in salt and fat, consuming more vegetables and fruits, exercising regularly, exercising physically and emotionally, avoiding cigarettes and alcohol, and having regular blood pressure checks.(6) From this statement, it can be concluded that the interaction of two factors, namely genetic factors and environmental factors, such as food and the influence of stress, causes hypertension. Self-Efficacy or self-confidence to adopt the behaviors needed to achieve goals, is the foundation of management for patients with hypertension.(7) Self-Efficacy includes a person's beliefs in facing self-care challenges.(8) In people with hypertension, this includes self-confidence in carrying out healthy behaviors such as taking medication regularly, exercising, maintaining a healthy diet, and monitoring blood pressure.(9) Many believe that *Self-Efficacy* and positive behavior are the keys to successful treatment and improving quality of life.(10)

The level of self-care compliance in people with hypertension is often low due to unsupportive habits or environments. Therefore, non-pharmacological solutions such as exercise are needed. Ling Tien Kung (Fu Chi) is a form of physical exercise that is very good for health, healing, and rejuvenation of the body. This exercise focuses on special techniques that focus on controlling the muscles around the anus, called the empet-empet anus (Fu Kang) and Charge Aki manusia, which are part of Ling Tien Kung. The various stretching movements in this exercise help increase blood flow and smooth the body's metabolism. As a result, blood circulation becomes smoother, and the body can transport oxygen, nutrients, and other metabolic products.(11) The health condition of the body will be affected by improved body metabolism, this also applies to the elderly who suffer from degenerative diseases.(12) Until now, there is still not much known about the effectiveness of Ling Tien Kung exercise therapy to prevent or treat hypertension, in Indonesia there is still little research related to Ling Tien Kung exercise therapy and the effectiveness of this exercise therapy has not been widely explained, so based on the phenomena and background above, researchers are interested in conducting research on the effect of Ling Tien Kung exercise therapy on Self Efficacy and blood pressure in hypertension patients.

2. Methods

Methods should be structured as follows :

2.1 Research Design

This study uses a quantitative approach, with a Pre-Experiment research design with a One Group Pre Test and Post Test Design, which begins with a pretest filling out the General Self Efficacy Scale (GSES) questionnaire to measure self-efficacy and blood pressure measurements before conducting the intervention. After that, the intervention was carried out twice a week for 3 weeks by conducting the intervention together with the gymnastics instructor. Then at the end of the 3rd week, the same post-test will be carried out again by filling out the GSES questionnaire to measure self-efficacy and blood pressure measurements.

2.2 Setting and Samples/Participants

The location of the study will be Grogol Village, Limo District, Depok City. The sampling technique in this study is the Non Probability Sampling Technique with the Purposive Sampling method. The sample to be taken from the posbindu population in the area of Grogol Village is 45 people. In this study, the instruments to be used are 2 questionnaires, namely the respondent characteristics questionnaire and the GSES questionnaire, as well as 1 blood pressure observation sheet.

2.3 Data Analysis

The data analysis used in this study was the Wilcoxon Signed Test with a significance level of $p < 0.005$.

2.4 Ethical Consideration

This research has obtained ethical approval from the UPNVJ Research Ethics Commission with number 269/VI/2024/KEP.

3. Results

Table 1. Characteristics of Subjects

Characteristics	N	Percentage (%)	Total
Age			
Mean (SD)	61.2 (6,978)		
Min-Max	49 – 75		
95% CI	59.15 – 63.34		
Gender			
Woman	33	73.3%	
Man	12	26.7%	
Level of Education			
No School	0	0	45
Elementary School	14	31.1%	(100%)
Junior High School	8	17.8%	
Senior High School	19	42.2%	
Diploma/Bachelor	4	8.9%	
Work			
Doesn't Work	0	0	
Housewife	30	66.7%	
Civil Servant	0	0	
Private Sector Employee	1	2.2%	
Retired	5	11.1%	
Other	9	20%	
Long-term Hypertension			
< 5 Years	39	86.7%	
> 5 Years	6	13.3%	

Table 1 show that the average age of respondents who participated in *Ling Tien Kung exercise therapy* was 61 years old, with the youngest being 49 years old and the oldest being 75 years old. The majority were female, 33 respondents (73.3%) and 12 respondents were male (26.7%). majority of respondents who participated in *Ling Tien Kung exercise therapy* had a high school education, namely 19 respondents (42.2%), then the lowest level of education was Diploma/Bachelor, namely 4 respondents (8.9%). The majority type of work are housewives, namely 30 respondents (66.7%) and only 1 (2.2%) respondent worked as a private employee. The majority of 39 respondents (86.7%) had suffered from hypertension for less than 5 years and only 6 respondents (13.3%) had suffered from hypertension for more than 5 years.

Table 2. Frequency Distribution of Self Efficacy of Hypertension Respondents Before and After Following Ling Tien Kung Gymnastics Therapy (n=45)

and After Following Eng-Pien Kung Gymnastics Therapy (n=45)			
Self Efficacy	Frequency	Percentage (%)	Total
Before			
Low	19	42.2%	45 (100%)
High	26	57.8%	
After			
Low	3	6.7%	
High	42	93.3%	

Based on the results of the analysis in table 2, it was found that of the 45 respondents who participated in *Ling Tien Kung exercise therapy*, the majority had high *Self Efficacy* before and after participating in exercise therapy, which increased from 26 respondents (57.8%) to 42 respondents (93.3%).

Table 3. Frequency Distribution of Blood Pressure of Respondents with Hypertension Who Underwent Ling Tien Kung Gymnastics Therapy (n=45)

Blood pressure	Frequency	Percentage (%)
Normal	0	0
Pre Hypertension	0	0
Hypertension Grade 1	11	24.4%
Hypertension Grade 2	34	75.6%
Total	45	100%

Based on the results of the analysis in table 3, it was found that of the 45 respondents who participated in *Ling Tien Kung exercise therapy*, the majority of respondents had blood pressure in the Hypertension Level 2 category, 34 respondents (75.6%), 11 respondents had blood pressure in the Hypertension Level 1 category with a percentage (24.4%), and no respondents had normal blood pressure or prehypertension.

Table 4. Comparison of Self-Efficacy Scores and Blood Pressure Before and After Ling Tien Kung Gymnastics Therapy (n=45)

Variables	Mean	Median	SD	Min-Max	Standard Error
Self Efficacy Score					
Pre Test	35.73	37	4,340	28-40	0.647
Post Test	38.62	40	2,048	30-40	0.305
Systolic Blood Pressure					
Pre Test	149.24	148	11,888	130-177	1,772
Post Test	132.13	130	12,618	108-163	1,881
Diastolic Blood Pressure					
For Test	88.42	89	14,106	43-116	2,103
Post Test	80.89	80	10,682	60-99	1,592

Based on the analysis results in table 4, it can be seen that from 45 respondents, the average *Self Efficacy score before Ling Tien Kung exercise therapy* was at 35.73 where the median was 37, which means that the average *Self Efficacy score* of the majority of respondents was low. While the average *Self Efficacy score after Ling Tien Kung exercise therapy* was at 38.62 with a median value of 40, which means that there was an increase to high. Furthermore, the average systolic blood pressure of respondents before undergoing *Ling Tien Kung exercise therapy* was 149.24 mmHg with a mean value of 148 mmHg where the majority of respondents had high blood pressure in the Hypertension Level 2 category, while after undergoing *Ling Tien Kung exercise therapy*, the average blood pressure decreased to 132.13 mmHg with a mean value of 130 mmHg which is in the Hypertension Level 1 category. Furthermore, the average diastolic blood pressure of respondents before undergoing *Ling Tien Kung exercise therapy* was 88.42 mmHg with a mean value of 89 mmHg where the majority of respondents had systolic blood pressure in the Hypertension Level 1 category, while after undergoing *Ling Tien Kung exercise therapy*, the average diastolic blood pressure decreased to 80.89 mmHg with a mean value of 80 mmHg.

Table 5. Analysis of the Effect of Ling Tien Kung Gymnastics Therapy on Self-Efficacy of Hypertension Patients

Variables	Min	Max	SD	P Value
Self Efficacy				
Pre Test	28	40	4,340	0,000
Post Test	30	40	2,048	

Based on the results of data analysis in table 5 using *the Wilcoxon Sign Rank Test*, it was found that there was a difference in the pre-test and post-test values on the *Self Efficacy score*, namely an increase in the *Self Efficacy score* from before to after *Ling Tien Kung exercise therapy* with a significance value ($P < 0.05$) which means that H_0 is rejected and H_a is accepted, so it can be concluded that there is an effect of *Ling Tien Kung exercise therapy* on *Self Efficacy* in hypertension patients.

Table 6. Analysis of the Effect of Ling Tien Kung Gymnastics Therapy on Blood

Pressure in Hypertension Patients				
Variables	Min	Max	SD	P Value
Systolic Blood Pressure				
Pre Test	130	177	11,888	0,000
Post Test	108	163	12,618	
Diastolic Blood Pressure				
Pre Test	43	116		0.001
Post Test	60	90		

Based on the results of data analysis in table 6 using *the Wilcoxon Sign Rank Test*, it was found that there was a difference in the pre-test and post-test values on the respondents' systolic and diastolic blood pressure values, namely a decrease in blood pressure from before to after *Ling Tien Kung exercise therapy* with a significance value ($P < 0.05$) which means that H_0 is rejected and H_a is accepted, so it can be concluded that there is an effect of *Ling Tien Kung exercise therapy* on blood pressure in hypertension patients

4. Discussion

a. Characteristics of Respondents

Of the 45 respondents, the majority were on average 61 years old with an estimated interval of 59-63 years. Individuals who have entered the age of 60 and over are said to be in the elderly age range.(13) Based on this statement, it can be stated that the majority of respondents who were the subjects of this study were elderly. The majority of hypertensive respondents who participated in *Ling Tien Kung exercise therapy* were female. Statistical data according to Stastical Yearbook of Indonesia the demographics of the female gender in the elderly population in Indonesia were recorded as being higher, namely 52.82% compared to the elderly who were male, namely 44.65%. The majority of study respondents had a high school education. Where this happened because of the lack of access to educational facilities in the past.(14) Another factor was also mentioned by Stastical Yearbook of Indonesia because the low financial conditions of households in the past affected the quality of education and the process of implementing education at that time. In this study, many respondents worked as housewives because the majority of respondents when sampling were female compared to male. Indriana's research stated that the work of housewives is relatively lighter in doing physical activities so that the risk of developing hypertension will be higher, other factors such as stress can also influence the occurrence of hypertension due to increased sympathetic nerve activity which causes blood pressure to increase persistently than usual. It was found that the majority of respondents had suffered from hypertension <5 years.(15) This happens because many of the patients still have minimal information about hypertension itself and do not know that they have hypertension so they only start treatment for less than 5 years for fear of causing drug dependency effects.(16)

b. The Effect of Ling Tien Kung on Self Efficacy of Hypertension Patients

Elderly hypertensives who have Self Efficacy in the high category will achieve their goals better because they have strong motivation, clear goals, more stable emotions, and the ability to get good results in carrying out activities and behaviors.(17) In this study, the elderly who experienced hypertension were dominated by the elderly with an average age of 61 years. Where hypertension will often occur when the age is 40 years or more, because the higher the age, the higher the risk of decreasing the quality of the endothelial layer of blood vessels so that the level of elasticity also decreases.(17) The results of this study showed an increase in Self Efficacy before and after Ling Tien Kung exercise therapy. This increase is due to therapeutic movements that stimulate the body to become more relaxed, with results that are felt after several therapies. Although it initially felt heavy and sore, the motivation and support of peers in group exercise increased respondents' motivation to live healthier and reduce hypertension. Ningrum's research supports that deep breathing exercises Ling Tien Kung is similar to yoga, helping to control the hypothalamus pituitary adrenal and central nervous system. In conclusion, this therapy has a positive impact on Self Efficacy of hypertension sufferers.(18)

c. The Effect of Ling Tien Kung on Blood Pressure of Hypertension Patients

Ling Tien Kung activates heat or energy (chi), which stimulates the hypothalamus to increase the release of serotonin, enkephalin, and beta endorphins. Enkephalin and beta endorphins are endogenous neurotransmitters produced by the pituitary and hypothalamus, especially in the arcuate nucleus. Endorphins released into the brain, spinal cord, and blood vessel system will reduce pain, increase pleasure, and relaxation. This therapy can also inhibit the release of norepinephrine and epinephrine, which constrict blood vessels, and stimulate the medulla. Vasodilation will lower blood pressure by increasing the body's metabolism, oxygen circulation, and blood flow.(19) Breathing exercises used in Lin Tien Kung exercises are identical to yoga poses, so they can help control hypothalamic pituitary adrenal and central nervous system activity that may be caused by stress triggers.(20) This can lower cortisol levels and have an impact on blood sugar levels. Foot-centered activities, such as tiptoeing (Lik Thie Tien Tien) by contracting the muscles and filling the largest blood vessels with blood, this exercise can improve blood circulation. This exercise also stimulates the nerves in the feet and reduces the accumulation of blood sugar in the feet. (18) Blood immediately reverses and begins to flow towards the heart when the heels go down, thus reducing tension.

5. Conclusion

Based on research that has been conducted on 45 respondents with the title "The Effect of Ling Tien Kung Exercise Therapy on Self-Efficacy and Blood Pressure in Hypertension Patients" it can be concluded that the description of the characteristics of the respondents who participated in this study were an average age of 61 years, the majority were female, had a high school education, worked as housewives, and had suffered from hypertension for less than 5 years. The description of the self-efficacy of the majority of respondents who participated in this study had high self-efficacy. The description of blood pressure before and after exercise therapy showed a decrease, namely from the majority having blood pressure in the category of hypertension level 2 and becoming hypertension level 1 after exercise therapy. The results of blood pressure decreased from 149.24 mmHg to 132.13 mmHg. The results of this study showed that there was an effect of Ling Tien Kung exercise therapy on Self Efficacy in hypertension sufferers with a significance value of 0.000 ($P < 0.05$) and there was also an effect of Ling Tien Kung exercise therapy on blood pressure in hypertension sufferers with a significance value of 0.000 ($P < 0.05$). This study used only one intervention group and did not use a control group to compare effectiveness

between the treatment and control groups. In patients who participated in exercise but took antihypertensive medication, no study was conducted to compare whether there were differences between the group that participated in exercise and took medication and the group that only received exercise therapy. Therefore, the researcher recommends that future researchers develop research topics with a larger number of samples and also with a control group to obtain maximum results.

6. References

1. Sofiana L, Puratmadja Y, Kartika BS. Upaya Peningkatan Pengetahuan Masyarakat Tentang Hipertensi Melalui Metode Penyuluhan. *J Pengabdiaan Masy Kasih*. 2022;3(2):7–13.
2. WHO. Hypertension [Internet]. 2021. Available from: https://www.who.int/health-topics/hypertension#tab=tab_1
3. Tackling G, Borhade MB. Hypertensive Heart Disease. In *Treasure Island (FL)*; 2023.
4. Riskesdas Kementrian Kesehatan RI. Laporan Riskesdas 2018 Nasional.pdf. Lembaga Penerbit Balitbangkes. 2018.
5. Profil Dinas Kesehatan Kota Depok. Profil Kesehatan Kota Tahun 2022. *Angew Chemie Int Ed* 6(11), 951–952. 2022;7(2):2013–5.
6. Ario Wahid Sauma, Isyeu Sriagustini, Sinta Fitriani, Wuri Ratna Hidayani, Leni M. Malabanan. The Analysis of Factors Influencing Hypertension on Elderly: A Literature Study. *J Public Heal Sci*. 2022;1(01):16–29.
7. Van Truong P, Wulan Apriliyasari R, Lin MY, Chiu HY, Tsai PS. Effects of self-management programs on blood pressure, self-efficacy, medication adherence and body mass index in older adults with hypertension: Meta-analysis of randomized controlled trials. *Int J Nurs Pract*. 2021 Apr;27(2):e12920.
8. Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychol Rev*. 1977 Mar;84(2):191–215.
9. Achmad VS, Syarif I, Supriatin T. Self Efficacy Terhadap Kepatuhan Perawatan Diri Pada Penderita Hipertensi Pendahuluan. *J Ilm Kesehat*. 2023;12(1):216–23.
10. Fitriani GN. Hubungan Efikasi Diri Dan Spiritualitas Dengan Koping Lansia Hipertensi Di Wilayah Kelurahan Grogol [Internet]. Universitas Pembangunan Nasional “Veteran” Jakarta; 2023. Available from: <http://repository.upnvj.ac.id/id/eprint/24968>
11. Swee FL. *Ling Tien Kung, Making People Healty (II)*. Surabaya; 2015.
12. Palupi LM, Hidayah N, Widiani E. Pemberdayaan Lansia Sebagai Upaya Pemantauan Pemicu Penyakit Degeneratif Melalui Latihan Ling Tien Kung. *Link*. 2022;18(1):17–21.
13. Akbar F, Darmiati D, Arfan F, Putri AAZ. Pelatihan dan Pendampingan Kader Posyandu Lansia di Kecamatan Wonomulyo. *J Abdidas*. 2021;2(2):392–7.
14. BPS. Statistik Indonesia (Statistical YearBook of Indonesia) [Internet]. Statistik Indonesia 2023. 2023. 790 p. Available from: <https://www.bps.go.id/publication/2020/04/29/e9011b3155d45d70823c141f/statistik-indonesia-2020.html>

15. Indriana N, Swandari MTK. Hubungan Tingkat Pengetahuan Dengan Kepatuhan Minum Obat Pada Pasien Hipertensi Di Rumah Sakit X Cilacap. *J Ilm JOPHUS J Pharm UMUS*. 2021;2(01).
16. Sridadi U, Swandari MTK, Utami TFY. HUBUNGAN SELF MANAGEMENT DENGAN TINGKAT KEPATUHAN PASIEN TERHADAP KEBERHASILAN TERAPI HIPERTENSI DI PUSKESMAS BONOROWO KEBUMEN. *J Ilm Kefarmasian*. 2023;5(1).
17. Risa Y, Nur Aini D, Wirawati MK. The Relationship Between Self Efficacy with Hypertension Degree. *Indones J Glob Heal Res*. 2022;4(1):117–24.
18. Ningrum NP. Teknik Gerakan Ling Tien Kung Dalam Menurunkan Hipertensi Pada Lansia. *SNHRP-II Semin Nas Has Ris dan Pengabdi*. 2019;2:571–7.
19. Putri HQ. Pengaruh Senam Ling Tien Kung Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi Dewasa Di Desa Somowinangun Karangbinangun Kabupaten Lamongan. *Universitas Muhammadiyah Lamongan*; 2021.
20. Muhammad H, Indarwati R, Ulfiana E. Teknik Gerakan Terapi Ling Tien Kung Meningkatkan Kualitas Tidur Lansia. *Indones J Community Heal Nurs* 3(1). 2014;3.