

Effectiveness of thought stopping on the level of compliance in taking antihypertension medication in the elderly

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Abstract

Background: It is hypothesised that thought stopping and assertive training represent a behavioural therapy that may assist in overcoming negative thoughts that impede relaxation and, consequently, the reduction of hypertension. It is proposed that medication compliance represents a pivotal factor in the management of blood pressure in patients with hypertension.

Method: The objective of this study was to ascertain the efficacy of thought stopping in enhancing compliance with hypertension treatment. The research design employed was a pretest-posttest group design with a control group. The study employed a pretest-posttest group design with a control group to compare the results of the group that received Thought Stopping treatment (the intervention group) with the group that received Assertive Training

Results: The data obtained on the level of compliance with taking anti-hypertensive drugs before and after the intervention revealed that 12.5% of the participants were compliant, while 87.5% were non-compliant. The statistical test results for the variable of thought stopping therapy yielded a p-value of 0.201, indicating that there was no statistically significant difference in the mean systolic blood pressure between the pre- and post-therapy periods at the 5% alpha level. Similarly, the statistical test results for the variable of thought stopping therapy yielded a p-value of 0.093, indicating that there was no statistically significant difference in the mean diastolic blood pressure between the pre- and post-therapy periods at the 5% alpha level.

Conclusion: The administration of Thought Stopping Therapy did not result in a statistically significant change in the mean systolic and diastolic blood pressure values between the pre- and post-therapy periods.

Keywords: Assertive Training; Thought Stopping; Hipertension

INTRODUCTION

Hypertension is a non-communicable disease health problem that is quite dangerous if left uncontrolled (1). Hypertension is nicknamed *the silent killer* due to the patient's ignorance so they do not attempt to control their blood pressure, resulting in several life-threatening complications (2). The severity of hypertension-related complications and the duration of an undiagnosed and untreated blood pressure condition will determine the extent of target organ damage. (3,4).

The prevalence of hypertension in Indonesia based on the results of the 2018 national population survey, at the age of ≥ 18 years is 34.1%. Hypertension in Indonesia has increased based on the 2018 Riskesdas data, as much as

34.1% whereas in 2013 it was only 25.8%. The 2018 Rikesdas results showed the highest prevalence in South Kalimantan (44.1%) while the lowest in Papua (22.2%). An estimated 63,309,620 people suffer from hypertension in Indonesia. Meanwhile, the death rate is 427,218 out of 268,369,114 people in Indonesia (5).

One of the efforts to reduce mortality and morbidity of hypertension is to control blood pressure. Based on the recommendations of the Joint National Committee 7, efforts that can be made are lifestyle modifications (dietary management, increased physical activity, reduced salt intake and weight loss). If these efforts are unsuccessful, antihypertensive drugs can be given (6). According to the American Heart Association, only 61% of people with

hypertension in America are on medication and one-third of them reach the expected blood pressure target. Patient adherence to hypertension treatment is a major factor determining the success of therapy that affects blood pressure and prevents complications (7). In fact, there are still few hypertensive patients who take regular medication. Based on an initial survey of the elderly at BPSTW Husnul Khotimah Pekanbaru, out of 73 elderly people, there were 39 hypertensive people who said they felt hopeless because the disease did not heal and were afraid of side effects because they took medicine every day. Based on the above phenomenon, researchers are interested in knowing the effectiveness of *Thought Stopping* and *Assertive Training* on the level of adherence to undergo hypertension treatment.

The purpose of applying *Thought Stopping* and *Assertive Training* to the level of compliance with undergoing hypertension treatment is that the elderly understand and comply with undergoing hypertension treatment and have positive thoughts in improving quality of life. The selection of elderly people who are in PSTW Husnul Khotimah is to minimise confounding factors and bias due to relatively the same dietary factors, physical activity, reduction in salt intake.

METHOD

The research design used is a pretest and post test group design with a control group. The design used to compare the results of the group that received *Thought Stopping* treatment (intervention group) with the group that received *Assertive Training*. The research design can be seen from the following scheme :

Subject	Pre-test	Treatment	Post-test
K-A	O1	I	O2
K-B	O3	II	O4

Description:

K-A : intervention subject

K-B : control subject

O1 : pre-measurement of medication adherence

O2 : measurement of medication adherence after

O3 : measurement of medication adherence before

O4 : measurement of medication adherence after

I : Thought Stopping treatment

II : assertive training treatment

The population in this study were elderly people with hypertension who were at the

Khusnul Khotimah Werda Home. The sample in this study used the calculation of the sample size below :

$$N = 2\sigma^2 (Z\alpha - Z\beta)^2 / (\mu_1 - \mu_2)^2$$

$$n = \frac{(2,11)^2 (1,96 + 0,842)^2}{(1,46)^2}$$

$$= 16,39 = 16 \text{ (rounded)}$$

The sample in this study was 16 respondents in each group, both intervention group and control group so that the total sample size was 32 respondents. The inclusion criteria in this study are:

- Patient diagnosed with hypertension
- Age above 60 years
- Patient stopped or irregularly taking antihypertensive medication
- The patient is willing to become a respondent

While the exclusion criteria are as follows:

- The patient has complicating diseases such as heart failure, kidney failure, stroke, and diseases that are harmful to the patient.

The research was conducted at Khusnul Khotimah Nursing Home Pekanbaru, with the research scheme in the table above. To measure the level of compliance, measurements will be taken using a questionnaire measuring adherence to taking medication with the answer Never: 1, Ever: 2, Sometimes: 3, Often: 4, Always: with categories of low compliance (11-25), medium compliance (26-40), high compliance (41-55).

Then the *Thought Stopping* treatment is carried out with 3 sessions, namely session 1: Identify, disconnect the disturbing/ threatening / stressful thoughts with the help of an alarm sound, session 2: practice breaking negative thoughts by using the Stop sign (writing the word "Stop" on the fan), and session 3: Practice breaking negative thoughts by whispering / saying quietly "Stop" to yourself. The control group will be given *Assertive Training* treatment with 5 sessions, namely session 1: Introduction to self, attitudes, assertive behaviour and assertive training, session 2: practicing the ability to express wants and needs, session 3: expressing reasons for not taking medication, session 4: saying "no" to irrational requests and conveying

reasons, and session 5: maintaining assertive behaviour in various situations.

The analysis used using SPSS with the scheme below:

a. analisis univariat

No	Variables	Statistical Test
1	Pre-treatment adherence in the control group	Mean, standard deviation, median, minimum and maximum values
2	Pre-treatment adherence in the intervention group	Mean, standard deviation, median, minimum and maximum values
3	Post-treatment adherence in the control group	Mean, standard deviation, median, minimum and maximum values
4	Post-treatment adherence in the intervention group	Mean, standard deviation, median, minimum and maximum values
5	Age	Mean, standard deviation, median, minimum and maximum values
6	Gender	Frequency distribution with percentage measures
7	Blood pressure	Frequency distribution with percentage measures

b. Analisis bivariat

Before the bivariate analysis is carried out, the data is first tested for homogeneity on the Confounding Factor.

1. Homogeneity Test

No	Variables	Data scale	Statistical test
1	Age in control and intervention groups	Numerical	T-test
2	Gender in the control group and intervention groups	Categorical	Chi-square
3	Blood pressure in control and intervention groups	Categorical	Chi-square
4	Pre-treatment adherence in the control and intervention groups	Numerical	T-test

2. Bivariate test

No	Variables	Data scale	Statistical test
1	Compliance medication before treatment Assertive Training	Compliance medication after treatment Assertive Training	Normal Paired T-test
2	Compliance medication before Thought Stopping	Compliance treatment after Thought Stopping	Normal Paired T-test
3	Compliance treatment after Assertive Training	Compliance treatment after Thought Stopping	Normal Independent T-test

This section contains materials and methods only, does not contain charts or flow charts. In the method, include the ethical feasibility of the research itself.

RESULTS

Based on research conducted under the title "The Effectiveness of *Thought Stopping* and *Assertive Training* on the Compliance Level of Taking Antihypertensive Medication in the Elderly". This study was conducted on 32 elderly people with 2 interventions, namely Thought Stopping and Assertive Training, 16 respondents each. The research was conducted by collecting data conducted by researchers by conducting interviews with respondents. The results of the study can be seen in the table below:

1. Univariate Analysis

The characteristics of Hypertensive Elderly at PSTW Khusnul Khotimah Pekanbaru can be seen in the following table:

Table 1. Frequency Distribution of Respondents Based on Elderly Age at PSTW Khusnul Khotimah Pekanbaru in 2024

Age Range	Frequency (Person)	Percentage (%)
Middle Age	9	28,125
Elderly / 10-18 years	10	31,250
Old / 19-59 years	12	37,500
Very Old / >60 years	1	3,1250
Jumlah	32	100

Based on table 1, it is known that of the 32 respondents, the majority of the age range classification is the elderly of old age (Old) as many as 12 people. (37,500%). Age groups of respondents based on age categories from the Indonesian Ministry of Health (8).

Table 2. Frequency Distribution of Respondents Based on Hypertension Classification at PSTW Khusnul Khotimah Pekanbaru in 2024

Classification	Frequency (Person)	Percentage (%)
Normal	6	18,750
Pre-Hipertensi	7	21,875
Stadium I	10	31,250
Stadium II	9	28,125
Total	32	100

Based on table 2, it is known that of the 32 respondents, the majority of the hypertension classification is stage I as many as 10 people. (31,250%).

Table 3. Frequency Distribution of Respondents Based on Length of Stay at PSTW Khusnul Khotimah Pekanbaru in 2024

Length of Stay in PSTW	Frequency (Person)	Percentage (%)
<1 year	6	18,75
1-3 year	4	12,50
3-5 year	8	25,00
> 5 year	14	43,75
Total	32	100

Based on table 3, it is known that of the 32 respondents, the majority have lived in the PSTW dormitory for more than 5 years as many as 14 people (43.75%).

Table 4. Frequency Distribution of Respondents Based on Adherence to Taking Hypertension Medication Before *Thought Stopping* Therapy at PSTW Khusnul Khotimah Pekanbaru in 2024

Compliance Classification	Frequency (Person)	Percentage (%)
Compliant	4	12,5
Non-compliant	28	87,5
Total	32	100%

Based on tables 4 and 5, it is known that out of 32 respondents based on adherence to taking anti-hypertensive drugs both before and after being given thought stopping exercises remained the same, namely non-compliant as many as 28 respondents (87,5%).

Table 5. Frequency Distribution of Respondents Based on Adherence to Taking Hypertension Medication After *Thought Stopping* Therapy at PSTW Khusnul Khotimah Pekanbaru 2024

Compliance Classification	Frequency (Person)	Percentage (%)
Compliant	4	12,5
Non-compliant	28	87,5
Total	32	100

Based on tables 4 and 5, it is known that out of 32 respondents based on adherence to taking anti-hypertensive drugs both before and after being given *thought stopping* exercises remained the same, namely non-compliant as many as 28 respondents (87,5%).

Table 6. Distribution of Respondents' Systolic Blood Pressure Before and After being given *Thought Stopping* Therapy at PSTW Khusnul Khotimah Pekanbaru 2024

Systolic Blood Pressure	Mean	SD	SE	P value	N
Before therapy	141,38	16,663	4,158	0,000	16
After therapy	134,06	15,004	3,751		16

Based on Table 6. The average systolic blood pressure of hypertensive elderly before thought stopping therapy was 141.38 mmHg with a standard deviation of 16.663 mmHg, while the average systolic blood pressure of hypertensive elderly after thought stopping therapy dropped to 134.06 mmHg with a standard deviation of 15.004 mmHg. The statistical test results obtained a value of $p = 0.000$, meaning that at 5% alpha there is a significant difference in the average systolic blood pressure between before and after thought stopping therapy.

Table 7. Distribution of Respondents' Diastolic Blood Pressure Before and After being given *Thought Stopping* Therapy at PSTW Khusnul Khotimah Pekanbaru 2024

Diastolic Blood Pressure	Mean	SD	SE	P value	N
Before therapy	77,63	12,371	3,093	0,000	16
After therapy	75,25	8,970	2,243		16

Based on Table 7. The average diastolic blood pressure of hypertensive elderly before thought stopping therapy was 77.63 mmHg with a standard deviation of 12.371 mmHg, while the average diastolic blood pressure of hypertensive elderly after thought stopping therapy dropped to 75.25 mmHg with a standard deviation of 8.970 mmHg. The statistical test results obtained a value of $p = 0.000$, meaning that at 5% alpha there is a significant difference in the average diastolic blood pressure between before and after thought stopping therapy .

Table 8. Distribution of Respondents' Systolic Blood Pressure Before and After Assertive Training Therapy at PSTW Khusnul Khotimah Pekanbaru 2024

Systolic Blood Pressure	Mean	SD	SE	P value	N
Before therapy	148,50	32,615	8,154	0,000	16
After therapy	143,75	25,598	6,400		16

Based on Table 8. The average systolic blood pressure of hypertensive elderly before Assertive Training therapy was 148.50 mmHg with a standard deviation of 32.615 mmHg, while the average systolic blood pressure of hypertensive elderly after Assertive Training therapy dropped to 143.75 mmHg with a standard deviation of 25.598 mmHg. The statistical test results obtained a value of $p = 0.000$, meaning that at 5% alpha there is a significant difference in the average systolic blood pressure between before and after being given Assertive Training therapy.

Table 9. Distribution of Respondents' Diastolic Blood Pressure Before and After Assertive Training Therapy at PSTW Khusnul Khotimah Pekanbaru 2024

Diastolic Blood Pressure	Mean	SD	SE	P value	N
Before therapy	80,00	18,225	4,556	0,000	16
After therapy	82,81	14,927	3,732		16

Based on Table 9. The average diastolic blood pressure of hypertensive elderly before Assertive Training therapy was 80 mmHg with a standard deviation of 18.225 mmHg, while the average diastolic blood pressure of hypertensive elderly after Assertive Training therapy increased to 82.81 mmHg with a standard deviation of 14.927 mmHg. The statistical test results obtained a value of $p = 0.000$, meaning that at 5% alpha there is a significant difference in the average diastolic blood pressure between before and after Assertive Training therapy .

2. Bivariate Analysis

Table 10. Distribution of Respondents' Systolic Blood Pressure Before and After Being Given Thought Stopping Therapy and Assertive Training at PSTW Khusnul Khotimah Pekanbaru 2024

Systolic Blood Pressure	Mean	SD	SE	P value	N
Before therapy	134,06	15,004	3,751	0,201	16
After therapy	143,75	25,598	6,400		16

Based on Table 10. The average systolic blood pressure of hypertensive elderly before Thought Stopping and Assertive Training therapy was 134.06 mmHg with a standard deviation of 15.004 mmHg, while the average systolic blood pressure of hypertensive elderly after Thought Stopping and Assertive Training increased to 143.75 mmHg with a standard deviation of 25.598 mmHg. The statistical test results obtained a value of $p = 0.201$ means that at 5% alpha there is no significant difference in the average systolic blood pressure between before and after being given thought stopping therapy and Assertive Training.

Table 11. Distribution of Diastolic Blood Pressure of Hypertensive Elderly Before and after being given Thought Stopping and Assertive Training exercises at PSTW Khusnul Khotimah Pekanbaru in 2024

Diastolic Blood Pressure	Mean	SD	SE	P value	N
Before therapy	75,25	8,970	2,243	0,093	16
After therapy	82,81	14,927	3,732		16

Based on Table 11. The average diastolic blood pressure of hypertensive elderly before Thought Stopping and Assertive Training therapy was 75.25 mmHg with a standard deviation of 8.970 mmHg, while the average diastolic blood pressure of hypertensive elderly after Thought Stopping and Assertive Training increased to 82.81 mmHg with a standard deviation of 14.927 mmHg. The statistical test results obtained $p=0.093$ means that at 5% alpha there is no significant difference in the average diastolic blood pressure between before and after being given Thought Stopping and Assertive Training therapy.

DISCUSSION

Based on the results of the study, the researcher discusses systematically the results of univariate analysis consisting of the characteristics of respondents and bivariate analysis by comparing the theory and research that has been conducted by researchers regarding the effectiveness of Thought Stopping and Assertive Training on the level of compliance with taking antihypertensive drugs in the elderly at PSTW Khusnul Khotimah Pekanbaru.

4.1. Univariate Analysis

1) Age

Based on the results of research conducted on 32 respondents, the majority of their ages were elderly, namely 75-90 years as many as 12 people (37.50%). This research is in line with Nurhayati's research (9) with the title The relationship between age and gender to the incidence of hypertension. The results of Nurhayati's research conducted in 50 obtained results that there was a significant relationship between age and the incidence of hypertension in patients of PKU Muhammadiyah Bantul Hospital (9). The researcher analysed that with increasing age, the cardiovascular system in the body will experience a decrease which will result in the incidence of hypertension which will also increase. The results of this study found that the distribution of the relationship between age and the incidence of hypertension from 9 young adult respondents the majority had pre-hypertension blood pressure as many as 9

people (18.0%), from 12 adult respondents the majority had grade I hypertension blood pressure as many as 5 people (10.0%), from 16 pre elderly respondents the majority had grade I hypertension blood pressure as many as 10 people (20.0%), from 13 elderly respondents the majority had grade II hypertension blood pressure as many as 9 people (18.0%) (9).

Nuraeni (2019) which states that with increasing age, changes occur in the arteries in the body to become wider and stiffer which results in reduced capacity and recoil of blood accommodated through blood vessels (10). This reduction leads to increased systolic pressure. Ageing also causes disruption of neurohormonal mechanisms such as the renin-angiotensin-aldosterone system and also leads to increased peripheral plasma concentrations and also the presence of glomerulosclerosis due to ageing and intestinal fibrosis resulting in increased vasoconstriction and vascular resistance, resulting in increased blood pressure (hypertension) (11).

2) Classification of Hypertension

Based on the results of the study of 32 respondents, the majority were stage I hypertensive patients as many as 10 people (31.25%). This research is in line with the research of Iryana Atika Khan (12), most of the elderly have stage 1 hypertension, 34 elderly (56.7%). There is a relationship between the level of knowledge and the condition of hypertension (13).

3) Medication Adherence Level

Based on the results of research conducted on 16 respondents, the level of compliance with taking anti-hypertensive drugs before and after the intervention was obedient as many as 4 people (12.5%), and disobedient as many as 28 people (87.5%). This research is in line with Zahra's research (14) with the title The Relationship Between Knowledge And Adherence To Taking Anti Hypertension Medication In 63 Elderly People In RW 14 Margasari Village Work Area of Puskesmas Margahayu Raya Bandung City.

The results showed that the elderly who had compliance in taking anti-hypertensive drugs were classified in the low category of 28

people (44%), the medium category was 27 people (43%) and the high category was 8 people (13%). These results illustrate that almost half of hypertensive elderly people have low compliance in taking anti-hypertensive drugs.

Based on Kresti Sundari's research (15) and Silvianah's research (16) said the consumption of anti-hypertensive drugs is a blood pressure stabilisation therapy. Adherence to taking medication is one of the actions that determine the success of therapy. Hypertension that sometimes does not cause symptoms, is considered harmless, busy work factors, decreased memory of taking medication and the correct dose of drugs in the elderly, the presence of drug side effects or stopping treatment when there are no complaints, and long treatment are factors for non-compliance with anti-hypertensive drugs.

4) Blood Pressure

Based on the results of research conducted on 16 respondents, the statistical test results obtained a value of $p = 0.201$, meaning that at 5% alpha there was no significant difference in the average systolic blood pressure between before and after being given *thought stopping* therapy, as well as the statistical test results obtained a value of $p = 0.093$, meaning that at 5% alpha there was no significant difference in the average diastolic blood pressure between before and after being given *thought stopping* therapy.

This research is not in line with the research of Aprida Manurung (17) with the title *Thought Stopping* in dealing with hypertension client anxiety. In this study, it can be concluded that *Thought Stopping* therapy provides benefits and influence in overcoming anxiety / anxiety in clients with hypertension so that clients are able to follow and be consistent in undergoing hypertension treatment.

Anxiety caused by negative thoughts that occur in hypertensive clients can affect medication, emotional and sleep quality (18). By applying *thought stopping* which is one of the therapies to reduce anxiety that can affect treatment so that it can help individuals control negative thoughts that interfere with or threaten the client's own way of thinking (18).

Thought stopping is a mind stopping method that can help overcome negative thoughts that interfere and hinder relaxation (19,20), *Thought* stopping is also a form of thought stopping practice by looking at the relationship between conscious and unconscious thoughts (21).

Assertive training is a therapy to train one's ability to express opinions, feelings, attitudes and rights without anxiety. *Assertive training* is a component of behavioural therapy and a process by which individuals learn to communicate needs, refuse requests and express positive and negative feelings in an open, honest, direct and understanding manner. Individuals who use assertive responses defend their rights and respect the rights and dignity of others (22).

Hypertension can be caused by anxiety in patients. According to (23) there is an association between anxiety and hypertension. Hypertension is a disease characterised by persistent high blood pressure in systemic arteries and is one of the risk factors for cardiovascular disease. Hypertension can be controlled with regular medication. Changing the patient's thinking to take medication can be done by giving *thought stopping*. *Thought stopping* or known as thought stopping technique is one of the individual therapies that clients can do to eliminate thought disorders and control negative behaviour and this therapy can be done at any time according to the client's wishes. (24).

4.2 Bivariate Analysis

This study used a total of 16 respondents. In the statistical test results, the p-value of the average systolic blood pressure of hypertensive elderly before and after the intervention value $p=0.201$ means that at 5% alpha there is no significant difference in the average systolic blood pressure between before and after being given *thought stopping* therapy which means that the $p\text{-value} > \alpha$. So it can be concluded that there is no effect of *thought stopping* therapy on the level of compliance with taking antihypertensive drugs in the elderly at PSTW Khusnul Khotimah Pekanbaru.

Zahra's study results (14) revealed that almost half of the respondents had low compliance because they did not fully understand hypertension disease, the importance of taking anti-hypertensive drugs, and forgot to take anti-hypertensive drugs. In addition, when viewed from the results of the study, there are other factors that contribute to the respondents' compliance in taking anti-hypertensive drugs, namely the research respondents are elderly over 60 years old. Therefore, the age factor causes the elderly to sometimes forget to take anti-hypertensive drugs because the increasing age of the elderly decreases memory and motivation in themselves. This research is not in line with the research of Kresti Sundari (15).

From the results of the study, it was found that the majority of respondents complied with anti-hypertensive drugs (55%). The test results obtained a value of $p = 0.000$. So it can be concluded that there is a relationship between adherence to taking anti-hypertensive drugs and changes in blood pressure. This is due to the undisciplined behaviour of the elderly in maintaining food and negative thought patterns that suddenly come.

In this case the researcher can draw the conclusion that *thought stopping* therapy is not effective for increasing compliance with taking medication in elderly hypertension at PSTW Khusnul Khotimah Pekanbaru..

CONCLUSIONS

Obtained data on the level of compliance with taking anti-hypertensive drugs before and after the intervention was 12.5% compliant, and 87.5% non-compliant. In the variable of *thought stopping* therapy, the statistical test results obtained a value of $p = 0.201$ means that at 5% alpha there is no significant difference in the average systolic blood pressure between before and after being given *thought stopping* therapy, as well as the statistical test results obtained a value of $p = 0.093$ means that at 5% alpha there is no significant difference in the average diastolic blood pressure between before and after being given *thought stopping* therapy. *Thought stopping therapy* has no effect on the average value of systolic blood pressure between before and after being given therapy and there is no significant difference in the average diastolic blood pressure

between before and after being given thought stopping therapy in the elderly.

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