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Effectiveness of assertive training on reducing blood sugar levels of diabetes mellitus clients at Puskesmas Rumbai

Wiwiek Delvira[1], Usraleli[1*], Melly[1], Fartha Nauli Anis[1], Vevi Suryenti Putri[2]
[1]Poltekes Kemenkes Riau
[2]Universitas Baiturrahim
*Corresponding author's email: usraleli@pkr.ac.id

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Background: Thought Stopping and Assertive Training is one of the behavioral therapies to help overcome negative thoughts that interfere and inhibit relaxation to reduce blood sugar levels. The purpose of this study was to determine the effect of the application of Assertive Training effectiveness on reducing blood sugar levels in DM patients at the Rumbai Health Center, Pekanbaru City.
Method: The design of this study was a quasi-experiment with a total sample of 50 DM patients located in the working area of Puskesmas Rumbai Pekanbaru City. Respondents were divided into two groups, namely the experimental group and the control group. The experimental group received Assertive Training therapy and the control group with standard intervention, namely Thought Stopping therapy.
Results: The mean blood sugar level after Thought Stopping therapy was recorded at 134.06 mg/dl, which showed a significant decrease from 169.59 mg/dl before therapy. Statistical tests showed a value of p=0.000, indicating that there was a significant difference at the 5% α level between blood sugar levels before and after Thought Stopping therapy. The average blood sugar level after Assertive Training therapy was 113.70 mg/dl, down from 147.59 mg/dl before therapy. The statistical test showed a value of p=0.000, indicating a significant difference at the 5% α level.
Conclusion: This shows that Assertive Training has a significant positive effect on reducing blood sugar levels. Assertive Training can help DM patients develop better coping strategies: diet management, physical activity and adherence to medication.

Keywords: Assertive Training; Thought Stopping; Diabetes Melitus.

INTRODUCTION

Diabetes mellitus or often referred to as diabetes is a chronic disease that occurs when the body cannot produce enough insulin or cannot use insulin (insulin resistance) (1). Diabetes mellitus is diagnosed through the observation of glucose levels in the blood. (2). Insulin is a hormone produced by the pancreas gland that plays a role in getting glucose from the bloodstream into the body's cells to be used as an energy source (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 mortality rate is 427,218 out of 268,369,114 people in Indonesia (5).

Type I DM (Insulin Dependent Diabetes Mellitus or IDDM) Type 1 diabetes results from a defect in the pancreatic ß (beta) cells to produce enough insulin, resulting in reduced insulin production. Insulin administration is very important in patients with type 1 DM (6–8). Type 2 DM (Non-Insulin Dependent DM or NIDDM) is characterised by tissue resistance to the action of insulin accompanied by a relative deficiency in insulin secretion. Affected individuals may be more resistant or have more severe β-cell deficiency (9,10).

DM often reduces the quality of life of patients. To achieve a satisfactory level of life, ideal health must be achieved and instilled in the patient (11,12). One form of achieving this goal is with assertive training techniques.

Assertive training is one of the techniques in behavioural counselling. Where the nature of counselling according to Behavioural is the process of providing assistance in a group situation learning to solve interpersonal, emotional, and decision-making problems in controlling their own lives and learning new appropriate behaviours. Individuals who use assertive responses defend their rights and respect the rights and dignity of others (13,14).

In general, people with diabetes mellitus are characterised by feeling thirsty, hungry, excessive urination and drastic weight loss (15). This allows people to identify the symptoms that arise. Symptoms of diabetes are divided into two, namely acute symptoms and chronic symptoms (16). The stages of acute symptoms in patients with DM are grouped into several phases, including:

a. Starting with symptoms known as 3P-many, namely eating a lot (polyphagia), drinking a lot (polydipsia), and urinating a lot (polyuria). This phase is characterised by weight gain or fatness (17,18).

b. The next phase is the result of the first phase not being treated. In this phase, the patient no longer experiences 3Ps, but only 2Ps, namely polydipsia and polyuria. Usually it is also accompanied by weight loss within 2-4 weeks, easy fatigue, and nausea to the point of feeling like falling. Some of the chronic symptoms include tingling more often, the patient's skin feels hot, like being pricked by a needle, easy fatigue, drowsiness, thick skin, cramps, blurred vision, itching in the pubic area, unsteady teeth, decreased sexual ability or impotence, to miscarriages experienced by pregnant women (16,18,19).

A recent nursing intervention that has been shown to provide great benefit in lowering blood sugar levels. This is in line with research (20) with the title *Efficacy of Modified Constraint Induced Movement Therapy in the Treatment of Hemiparetic Upper* Limb *in Stroke Patients: A*R*andomised Controlled Trial* states that compared to the conventional rehabilitation group, the CIMT group showed significantly better scores on functional improvement of the upper extremities with a *p* value of *<0.0001*. Therefor the authors are interested in conducting research on the application of *Constraint Induced Movement Therapy (CIMT)* to functional ability of upper extremities patients.

The purpose of this study was to determine the effect of the application of *assertive training* effectiveness on reducing blood sugar levels in DM patients at Puskesmas Rumbai Pekanbaru City. The design of this study was a quasi-experiment with a sample size of 50 moderate DM patients located in the working area of Puskesmas Rumbai Pekanbaru..

METHOD

This research design uses a quasi-experiment method with a pretest posttest design. Respondents were divided into two groups. There was an intervention group and a control group. The intervention group received assertive *training therapy* and the control group received thought *stopping therapy*. Before the intervention, the respondents' blood sugar levels were measured, the assertive *training therapy* was conducted (13,14,21) 5 sessions and each session was evaluated. After completing session 5, 1 week later a post test was conducted to measure blood sugar levels.

The research design can be seen from the following scheme:

Subjek	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 : measurement of medication adherence before
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 diabetes mellitus who were at the

Rumbai Health Centre. Sampling was carried out using the minimum sample size formula (22) and obtained a sample of :

$N = 2\sigma^2 (Z\alpha\text{-}Z\beta)^2 / (\mu 1\text{-}\mu 2)^2$

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

= 24,39 = 25 (dibulatkan)

The sample in this study were 25 respondents in each group both intervention group and control group so that the total sample size was 50 respondentsThe inclusion criteria in this study were:

1. Patients diagnosed with diabetes mellitus
2. Age above 40-55 years
3. Patient stopped or irregularly taking insulin medication
4. Patients willing to become respondents

While the exclusion criteria are as follows:

a. The patient had complications such as heart failure, kidney failure, stroke, and diseases that were harmful to the patient and was not willing to be a respondent.

The research was conducted at Puskesmas Rumbai Pekanbaru, with the research scheme in the table above. To measure the level of compliance will be measured using a questionnaire measuring compliance with taking medication with answers: 1, Never: 2, Sometimes: 3, Often: 4, Always: with categories of low compliance (11-25), medium compliance (26-40), high compliance (41-55) (23–27).

Then *Thought Stopping* treatment (17) The control group will be given Assertive Training treatment with 3 sessions, namely session 1: Identify and disconnect thoughts that disturb and threaten and cause stress, session 2: Practice disconnecting thoughts using recordings, and session 3: Practice disconnecting thoughts automatically. The control group will be given *Assertive Training* treatment with 5 sessions, namely session 1: Self-introduction, attitudes, assertive behaviour and assertive practice, 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 change in various situations.

The analysis used using SPSS with the scheme below:

a. Univariate Analysis

No	Variabel	Statistic Test
1	GD levels before in the control group	Mean, standard deviation, median, minimum and maximum values
2	GD levels before in the intervention group	Mean, standard deviation, median, minimum and maximum values
3	GD level after in the control group	Mean, standard deviation, median, minimum and maximum values
4	GD level after in the control 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. Bivariate Analysis

Before conducting bivariate analysis, the data was first tested for homogeneity on the *Confounding Factor*.

1. Homogeneity Test

No	Variabel	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 sugar in control and intervention groups	Categorical	Chi-square
4	Blood sugar before the control and intervention groups	Numerical	T-test

2. Bivariate test

No	Variabel		Data Distribution	Statistical test
1	GD Level Before treatment Assertive Training	GD Level Before treatment Assertive Training	Normal	Paired T-test
2	*GD levels before thought stopping*	*GD before thinking about quitting*	Normal	Paired T-test
3	GD levels after assertive training	GD levels after assertive training	Normal	Independen T-test

RESULTS

Based on research conducted under the title "Effectiveness of Assertive Training on Reducing Blood Sugar Levels of Diabetes Mellitus Respondents at Rumbai Health Center". This study was conducted on 54 respondents with Diabetes Mellitus with 2 interventions, namely Assertive Training and Thought Stopping for 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 blood sugar levels at the Rumbai Pekanbaru health center can be seen in the following table:

Table 1. Frequency Distribution of Respondents' Sugar Levels Before being given*Thought Stopping* Exercise at Puskesmas Rumbai Pekanbaru in 2024

Blood Sugar Levels	Mean	SD	Min-Maks
KGD	169.593	47.057	126 – 275

Based on table 1, the average blood sugar level before ***Thought Stopping*** was given to respondents who experienced Diabetes Mellitus in the Rumbai Health Centre working area was 169,593 mg/dl with a standard deviation of 47,057 mg/dl. The lowest blood sugar level was 126 mg/dl and the highest was 275 mg/dl..

Table 2. Frequency Distribution of Respondents' Sugar Levels After being given*Thought Stopping* Exercise at Puskesmas Rumbai Pekanbaru in 2024

Blood Sugar Levels	Mean	SD	Min-Maks
KGD	128.259	37.902	89 – 220

Based on table 2, the average blood sugar level after being given *Assertive Training* to respondents who experience Diabetes Mellitus disease in the Rumbai Puskesmas work area is 128.259 mg/dl with a standard deviation of 37.902 mg/dl. The lowest blood sugar level is 89 mg/dl and the highest is 220 mg/dl.

Table 3. Frequency Distribution of Respondents' Blood Sugar Levels Before and after being given *Thought Stopping* Exercise at Puskesmas Rumbai Pekanbaru in 2024

Diastolic Blood Pressure	Mean	SD	SE	P value	N
Before therapy	169.59	47.057	8.734	0,000	27
After therapy	134,06	37.902	6.440		27

Based on Table 3. The average blood sugar level of DM respondents before ***Thought Stopping*** therapy was 169.59 mg/dl with a standard deviation of 47.057 mg/dl, while the average blood sugar level of DM elderly after ***Thought Stopping*** therapy dropped to 134.06 mg/dl with a standard deviation of 37.902 mg/dl. The statistical test results obtained a value of p = 0.000, meaning that at 5% alpha there is a significant difference in the average blood sugar levels between before and after ***Thought Stopping*** therapy.

2. **Analisa Bivariat**

Table 4. Frequency Distribution of Respondents' Blood Sugar Levels Before being given*Assertive Training Exercise* at Puskesmas Rumbai Pekanbaru in 2024

Blood Sugar Levels	Mean	SD	Min-Maks
KGD	147,59	45,381	96 – 260

Based on table 4, the average blood sugar level before being given*Assertive Trainning*torespondentswho experience Diabetes Mellitus disease inRumbai Health Centre work area is 147.59 mg/dl with a standard deviation of 45.381 mg/dl.The lowest blood sugar level is 96 mg/dl and the highest is 260 mg/dl.

Table 5. Frequency Distribution of Blood Sugar Levels of Diabetes Mellitus Respondents After being given *Assertive Training* Exercises at Puskesmas Rumbai Pekanbaru in 2024

Blood Sugar Levels	Mean	SD	Min-Maks
KGD	113,70	33,462	82 – 220

Based on table 5, the average-average blood sugar levels after being given***Assertive Training Respondents Who Experience*** Diabetes Mellitus disease inRumbai Health Centre work area is 113,70 mg/dl with a standard deviation of 33.462 mg/dl.The lowest blood sugar level is 82 mg/dl and the highest was 220 mg/dl.

Table 6. Distribution of Respondents' Blood Sugar Levels Before and after being given *Assertive*Training at Puskesmas Rumbai Pekanbaru in 2024

Diastolic Blood Pressure	Mean	SD	SE	P value	N
Before therapy	147,59	45,381	8,734	0,000	27
After therapy	113,70	33,462	6,440		27

Based on table 6. The average blood sugar level of respondents with Diabetes Mellitus before *Assertive Training Therapy* was 147.59 mg/dl with a standard deviation of 45.381 mg/dl, while the average blood sugar level of respondents after*Assertive Training Therapy* dropped to 113.70 mg/dl with a standard deviation of 6.440 mm/dl. The statistical test results obtained a value of *p=0.000*, meaning that at alpha 5% there is a significant difference in average blood sugar levels between before and after being given*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 *Assertive Training* on reducing blood sugar levels of diabetes mellitus clients at Puskesmas Rumbai in Puskesmas Rumbai Pekanbaru.

4.1. Univariate Analysis

1) Before Therapy

Based on the results of research conducted on 50 respondents, the majority before the implementation of *Thought Stopping Therapy* experienced an increase in blood sugar levels from 126 mg/dl to 275 mg/dl. In table 1, it can be seen that the average blood sugar level before the application of the exercise *Thought Stopping* is 169.593 mg/dl with a standard deviation of 47.057 mg/dl. The range of blood sugar levels varied from 126 mg/dl to 275 mg/dl. This high average suggests that many older people at Puskesmas Rumbai have hyperglycemia that needs to be addressed.

The results of this study are in line with research (28) shows that blood sugar levels before diabetes gymnastics in type II DM patients, the average distribution of blood sugar levels before shown is 164.50 mg/dl, with the lowest blood sugar level value is 145 mg/dl while the highest blood sugar level value is 188 mg/dl. The data above shows that the average blood glucose level before exercise is relatively high, because type II DM patients are still less aware of the importance of diet, physical exercise and drugs for type II DM sufferers.

2) After Therapy

After the application of the *thought stopping* exercise, the results shown in Table 2 showed a significant reduction in blood sugar levels. The mean blood sugar level after therapy was 128.259 mg/dl with a standard deviation of 37.902 mg/dl, with a minimum value of 89 mg/dl and a maximum of 220 mg/dl. This decrease shows the effectiveness of therapy in controlling blood sugar levels.

The results of this study are in accordance with (17) Research conducted on 30 respondents, showed the results that after being given the intervention of *thought stopping* therapy, the quality of elderly sleep improved to good, namely as many as (30 people) with a percentage (100%). Sleep quality is stated to improve well when a person does not show signs of sleep deprivation and does not experience problems in their sleep.

By reducing negative thoughts and stress, individuals are better able to make better decisions regarding diet, self-control and decreased anxiety. This is important as an unhealthy diet, poor self-control and anxiety can lead to spikes in blood sugar levels. The application of these techniques can help individuals not to get caught up in emotional eating habits that often result from stress. Stress management is an important component in maintaining metabolic health and preventing dangerous fluctuations in blood sugar levels.

3) Comparison Before and After Therapy

Table 3 provides a comparison of blood sugar levels before and after therapy. The average blood sugar level after therapy was recorded at 134.06 mg/dl, which showed a significant decrease from 169.59 mg/dl before therapy. Statistical tests showed *p=0.000*, indicating that there was a significant difference at 5% α level between blood sugar levels before and after *Thought Stopping* therapy.

Thought Stopping (29,30) is a technique used to overcome negative thoughts and stress, which can have an effect on blood sugar levels. When one applies*Thought Stopping*, they can reduce the level of stress experienced. High stress often leads to an increase in hormones such as cortisol, which can increase blood sugar levels. By reducing stress, cortisol secretion can be reduced, thus helping to stabilise blood sugar levels. (30)

The application of the *Thought Stopping Technique* can have a positive effect on blood sugar levels through stress reduction, increased self-control in diet, and decreased anxiety. Thus, this technique can be a useful tool in health management for individuals at risk of metabolic problems such as diabetes.This study supports the importance of psychological approaches in diabetes management, which are often overlooked in clinical practice..

4.2. Bivariate Analysis

1) Before Therapy

Based on Table 4, it can be seen that the average blood sugar level before the intervention was 147.59 mg/dl with a standard deviation of 45.381 mg/dl. The range of blood sugar levels ranged from 96 mg/dl (minimum) to 260 mg/dl (maximum). These relatively high average blood sugar levels indicate that most patients had hyperglycaemia, which poses a risk of serious complications if not treated properly.

2) After Therapy

After the application of *Assertive Training*, the results shown in Table 5 indicate a significant reduction in blood sugar levels. The mean blood sugar level after treatment was 113.70 mg/dl with a standard deviation of 33.462 mg/dl, with a range from 82 mg/dl to 220 mg/dl. This decrease in blood sugar levels suggests that *Assertive Training* can contribute to more effective DM control.

3) Comparison Before and After Therapy

Comparison of blood sugar levels before and after treatment. The average blood sugar level after treatment was 113.70 mg/dl, down from 147.59 mg/dl before treatment. Statistical tests showed a *p=0.000* value, indicating a significant difference at the 5% α level. This shows that *Assertive Training* has a significant positive effect on reducing blood sugar levels.

This significant reduction in blood sugar levels may be due to improved stress management and increased confidence in managing their health condition. *Assertive Training* can help patients develop better coping strategies, which in turn can affect dietary management, physical activity and medication adherence. *Assertive Training* has the potential to help patients with diabetes mellitus manage their blood sugar levels by improving communication skills, reducing stress, and motivating positive behaviour change. Through this approach, it is hoped that patients can achieve better control of their

condition and prevent long-term complications from diabetes. Further research is needed to explore this relationship in depth and identify the most effective intervention strategies.

CONCLUSIONS

The application of *Thought Stopping Techniques Can* have a positive effect on blood sugar levels through stress reduction, increased self-control in diet, and decreased anxiety. Table 3 provides a comparison of blood sugar levels before and after therapy. The average blood sugar level after therapy was recorded at 134.06 mg/dl, which showed a significant decrease from 169.59 mg/dl before therapy. The statistical test showed a value of *p=0.000*, indicating that there was a significant difference at 5% α level between blood sugar levels before and after *Thought Stopping* therapy.

This significant reduction in blood sugar levels may be due to improved stress management and increased confidence in managing their health condition. *Assertive Training* can help patients develop better coping strategies, which in turn can influence dietary management, physical activity and medication adherence. Comparison of blood sugar levels before and after therapy. The average blood sugar level after treatment was 113.70 mg/dl, down from 147.59 mg/dl before treatment. Statistical tests showed a *p=0.000* value, indicating a significant difference at the 5% α level. This shows that *Assertive Training* has a significant positive effect on reducing blood sugar levels.

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REFERENCES

1. Rusdi MS. Hipoglikemia Pada Pasien Diabetes Melitus. J Syifa Sci Clin Res. 2020;2(September):83–90.
2. Rismayanti IDA, Sundayana IM, Ariana PA, Heri M. Edukasi Diabetes terhadap Penurunan Glukosa Darah pada Penderita Diabetes Mellitus Tipe 2. J Telenursing. 2021;3(1).
3. International Diabetes Federation. IDF DIABETES ATLAS [Internet]. Ninth edit. Karuranga S, Malanda B, Saeedi P, Salpea P, editors. Vol. 266, International Diabetes Federation. International Diabetes Federation; 2019. 134–137 p. Available from: https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://diabetesatlas.org/upload/resources/material/20200302_133351_IDFATLAS9e-final-web.pdf&ved=2ahUKEwjxxMKSoveJAxUkxDgGHTd1CVgQFnoECBcQAQ&usg=AOvVaw2oSKP0SvbuU3goC7IUjLcX
4. Antoni M. Terapi Diabetes Melitus Tipe 2 Berbasis Hormon Inkretin. J Kedokt Meditek. 2023;29(2).
5. Kemenkes. Riskesdas 2018 Nasional. Lembaga Penerbit Balitbangkes. 2018. p. hal 156.
6. Ferrannini E, Mari A, Nofrate V, Sosenko JM, Skyler JS. Progression to diabetes in relatives of type 1 diabetic patients: Mechanisms and mode of onset. Diabetes. 2010;59(3).
7. Wu J, Yan LJ. Streptozotocin-induced type 1 diabetes in rodents as a model for studying mitochondrial mechanisms of diabetic β cell glucotoxicity. Vol. 8, Diabetes, Metabolic Syndrome and Obesity. 2015.
8. Ni R, Zheng D, Xiong S, Hill DJ, Sun T, Gardiner RB, et al. Mitochondrial calpain-1 disrupts ATP synthase and induces superoxide generation in type 1 diabetic hearts: A novel mechanism contributing to diabetic cardiomyopathy. Diabetes. 2016;65(1).
9. Huang CJ, Lin CY, Haataja L, Gurlo T, Butler AE, Rizza RA, et al. High expression rates of human islet amyloid polypeptide induce endoplasmic reticulum stress-mediated β-cell apoptosis, a

characteristic of humans with type 2 but not type 1 diabetes. Diabetes. 2007;56(8).
10. Bhowmick DC, Kudaibergenova Z, Burnett L, Jeremic AM. Molecular Mechanisms of Amylin Turnover, Misfolding and Toxicity in the Pancreas. Vol. 27, Molecules. 2022.
11. Sothornwit J, Srisawasdi G, Suwannakin A, Sriwijitkamol A. Decreased health-related quality of life in patients with diabetic foot problems. Diabetes, Metab Syndr Obes. 2018;11.
12. Ma L, Chen J, Sun Y, Feng Y, Yuan L, Ran X. The perceptions of living with diabetic foot ulcers: A systematic review and meta-synthesis of qualitative studies. Vol. 32, Journal of Tissue Viability. 2023.
13. Kazemi SAH, Yasouj FF, Beigirad A, Memar FZ, Khodabandehlou SK, Rafie M, et al. The effect of group assertive training on the self-esteem and quality of life in the spouses of drug-abusing patients. Brain Behav. 2022;12(9).
14. Rusmana N, Hafina A, Siddik RR, Nur L. Self-esteem development of vocational high school students in Indonesia: Does group counseling with assertive training technique help? Cakrawala Pendidik. 2020;39(3).
15. Himmah SC. Pengaruh Pola Makan Dan Aktivitas Fisik Terhadap Penurunana Kadar Gula Darah Pada Pasien Diabetes Melitus Tipe 2 Di Klinik Aulia Jombang. 2020;(November):1–41.
16. Hadi Abdul. Manajemen diabetes melitus. Berk Kesehat. 2020;2(1).
17. Muhammad M, Awan D, Ely M. Pengaruh Terapi Though Stopping Terhadap Peningkatan Kualitas Tidur Lanjut Usia di Balai Sosial Lanjut Usia Mandalika NTB. Bima Nurs J. 2022;1(1):10.
18. Hardianto D. TELAAH KOMPREHENSIF DIABETES MELITUS: KLASIFIKASI, GEJALA, DIAGNOSIS, PENCEGAHAN, DAN PENGOBATAN. J Bioteknol Biosains Indones. 2021;7(2).
19. Mildawati, Diani N, Wahid A. Hubungan Usia, Jenis Kelamin dan Lama Menderita Diabetes dengan Kejadian Neuropati Perifer Diabateik. Caring Nurs J. 2019;3(2).
20. Yadav RK, Sharma R, Borah D, Kothari SY. Efficacy of modified constraint induced movement therapy in the treatment of hemiparetic upper limb in stroke patients: A randomized controlled trial. J Clin Diagnostic Res. 2016;10(11):YC01–5.
21. Azmi W, Nurjannah N. TEKNIK ASSERTIVE TRAINING DALAM PENDEKATAN BEHAVIORISTIK DAN APLIKASINYA KONSELING KELOMPOK: SEBUAH TINJAUAN KONSEPTUAL [ASSERTIVE TRAINING TECHNIQUES IN BEHAVIORISTIC APPROACHES AND ITS APPLICATIONS GROUP COUNSELING: A CONCEPTUAL REVIEW. J Contemp Islam Couns. 2022;2(2).
22. Lameshow S, Jr DWH, Klar J, Lwanga SK. Besar Sampel dalam Penelitian Kesehatan. Vol. 4, Herd. 1997.
23. Indriana N, Pertiwi MTKSY. Hubungan Tingkat Pengetahuan Dengan Kepatuhan Minum Obat Pada Pasien Hipertensi. Ilm Jophus J Pharm Umus. 2020;2(01).
24. Lestari T. TINGKAT KEPATUHAN PENGGUNAAN OBAT ANTIHIPERTENSI DI PUSKESMAS BANTUL II YOGYAKARTA. J ILMU Kesehat BHAKTI SETYA Med. 2021;6(1).
25. Anjarsari R, Padoli P, Waluyo KO. Kepatuhan Minum Obat dan Kualitas Hidup Pasien Hipertensi di Wilayah Puskesmas Kenjeran Surabaya. J KEPERAWATAN. 2023;17(2).
26. Putra IPBP, Arisudhana GAB, Wijaya IPA. Hubungan Tingkat Stres, Depresi, dan Kecemasan dengan Kepatuhan Minum Obat pada Lansia Hipertensi. J Nurs Res Publ Media. 2023;2(3).

27. 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).
28. Nugraha A, Kusnadi E, Subagja S. Kadar Gula Darah Sebelum dan Sesudah Melaksanakan Senam Diabetes pada Pasien Diabetes Melitus Tipe II. Jurrnal Ilm Kesehat. 2016;IX(1):1–6.
29. Manurung A. Thought Stoping dalam Menghadapi Ansietas Klien Hipertensi merupakan salah satu terapi modalitas dengan menggunakan kemampuan dalam mengontrol. J Anestesi J Ilmu Kesehat dan Kedokt. 2024;2(3).
30. Agustarika B, Nasution. Pengaruh terapi thought stopping terhadap ansietas klien dengan gangguan fisik di RSUD Kabupaten Sorong. Phys Rev E. 2011;24.