

EFFECTS OF FIVE-FINGER RELAXATION TECHNIQUE ON DEPRESSION IN TYPE 2 DIABETES MELLITUS PATIENTS

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ABSTRACT

Diabetes Mellitus (DM) can cause physical and psychological changes for the patients. Psychological changes include changes in self-concept and depression. Depression can be treated with nonpharmacological therapies, one of which is the five-finger relaxation technique. The research aimed to reveal the effect of the five-finger relaxation technique on depression experienced by type 2 DM patients. The five-finger relaxation technique is one of the generalist relaxation techniques by recalling pleasant experiences. This research method used that of quasi-experiment with pre-test and post-test with control group design. Samples of this research were patients with DM Type 2, with the sample size were 34 respondents. Inclusion criteria were DM patients who suffer from DM \geq 1 year or more and were physically able and never done five finger relaxation, and have a blood glucose level under 250 mmHg. Sampling technique using consecutive sampling. The intervention was carried out once a day for three consecutive days. In order to measure depression, a valid and reliable questionnaire of the Indonesian version of the Beck Depression Inventory (BDI) was employed. Data were analyzed using the Wilcoxon test and the Mann-Whitney test. The results showed there was a decrease in depression in the control group (p-value of 0.008) and the intervention group (p-value of 0.000) and there were differences in depression in the control group and the intervention group (p-value of 0.000). It can be concluded that there is an effect of five-finger relaxation technique on depression in type 2 DM patients.

Keywords: Depression; five-finger relaxation techniques; type 2 diabetes mellitus



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INTRODUCTION

Diabetes Mellitus (DM) is a metabolic disease in the form of a collection of symptoms due to increased amount of sugar in the blood (hyperglycemia) resulted from abnormalities in insulin secretion, insulin action, or both. The increased amount of sugar in the blood causes blood sugar to accumulate in the blood to fail to enter the cells. The failure results from a decrease in the amount of insulin or defects in insulin function.

DM is called a "Silent Killer" because it is a disease that can slowly kill a person. It is also called the "Mother of Disease" because it is a carrier or parent of diseases such as heart disease, hypertension, stroke, kidney failure and blindness. Complications can occur if DM is not managed properly,

which will cause various accompanying diseases in various organs of the body due to damage to blood vessels throughout the body, called diabetic angiopathy.

DM can also cause physical and psychological changes for sufferers. Physical changes can be seen through a decrease in body weight, wounds taking a longer time to heal, blurred vision and chapped skin. Meanwhile, psychological changes include changes in self-concept and depression. Psychological depression can occur when a person receives a diagnosis of DM. It is generally assumed that it will cause many problems such as diet control, long and complex therapy, expensive medical costs, complications of the disease and many other concerns that can lead to the potential for depression (Wulandari, 2019).

According to Beck, depression is a psychological symptom characterized by decreased mood, sadness, difficulty concentrating, retardation and agitation, and appetite and sleep disorders (Sari & Subandi, 2015). There are three levels of depression according to PPDGJ-III, namely, mild, moderate and severe. Mild depression is characterized by loss of interest and excitement, fatigue, decreased activity, concentration, and less attention (Maslim, 2013).

Depression can be overcome with pharmacological and nonpharmacological therapy. During the last two decades, nursing care in DM patients has been carried out in the context of pharmacological collaboration (Smeltzer & Bare, 2013). Lack of information about nonpharmacological therapies is one reason why sufferers tend to choose pharmacological treatment (Dewi, 2018). Therefore, nurses are expected to be able to provide nursing care independently through nonpharmacological therapy. Nonpharmacological therapy includes Cognitive Behavior Therapy (CBT). CBT can handle especially mild depression of the patient DM Type 2.

CBT is a short-term therapy that emphasizes the importance of patients' thinking in determining how they feel and what they do. This therapy focuses on the relationship between thoughts, behavior, and feelings of a person and their role in specific symptoms, daily functions, and quality of life. Several studies have shown that a nonpharmacological approach with CBT is a mandatory intervention that must be performed in every DM therapy (Smeltzer & Bare, 2013). The type of CBT that can be used to reduce depression is a five-finger relaxation technique.

The five-finger relaxation technique is part of the reduction in self-hypnosis stress and depression. Smeltzer and Bare also stated that the five-finger relaxation technique is useful to handle anxiety, stress, and depression of the patient because the guided process of imagination will create a vision accepted by the receptors from all senses, creating a relaxed state of mind. The five-finger relaxation technique is a process that uses the power of the mind by moving the body to heal itself and maintain health or relax through communication in the body involving all the senses, including smell, touch, vision and hearing (Dewi, 2019).

The five-finger relaxation technique has never been applied at the Cisaat Health Center. The Cisaat Health Center has a program for controlling DM, namely *Prolanis*, or Chronic Disease Management Program. *Prolanis* consists of gymnastics, education, blood sugar checks, blood pressure checks, height and weight measurements. This shows that, in the Cisaat Health Center, nonpharmacological therapy with five-finger relaxation techniques has not been a supporting treatment for people with DM. Therefore, the authors are interested in researching about "The Effect of Five Finger Relaxation Technique on Depression in Patients with Type 2 DM in the Cisaat Health Center in Sukabumi Region".

METHOD

Study Design

This research is a quasi-experiment with Pretest-Posttest Control Group Design.

Participant

The research population was all patients with type 2 DM in the Cisaat Community Health Center in Sukabumi, numbering 42 patients. The researchers conducted sample groupings by odd-even randomization, odd sequences as

the control group and even sequences as the intervention group. Based on inclusion criteria, samples were taken using consecutive sampling with a sample size of 34 respondents, consisting of 17 respondents for each intervention group and control group.

Inclusion criteria for respondents in this research are as follows; DM sufferers who are willing to become respondents, more than 1 year, able to do five-finger relaxation, never done five-finger relaxation, the blood glucose level under 250 mmHg, patients who experience mild-depression.

Exclusion criteria for respondents in this research are as follows: DM sufferers who receive insulin injection therapy, experience gangrenous ulcers, leg amputation, take antidepressant drugs, major depression.

Instrument

The instrument used was a questionnaire to measure depression, namely the Indonesian version of the Beck Depression Inventory (BDI) II with a reliability of 0.79 (Mundiartasari, 2014). The convergent validity test stated that BDI II has a high correlation (0.91) (Septianto, 2014).

The researcher identified the patients who were made as research respondents through the BDI questionnaire that had previously been informed. Patients who experienced mild-moderate depression when filling out the BDI questionnaire would be used as respondents.

Intervention

According to Kelliat, A five-finger relaxation intervention is done by concentration and relaxation. The first touches the thumb with the index finger and reminisces when the patient feels healthy, the second touches the thumb with the middle finger and reminisces about the first time the patient experienced happiness, the third touches the thumb with the ring finger and reminisces about when the patient received praise and finally touched the thumb with the little finger and reminiscing about the most beautiful place ever visited (Dewi, 2018).

The intervention was carried out once a day for 3 consecutive days, each of which was carried out for 10-15 minutes between 10:00 to 11:00 in the respondent's living room. The post-test measurements were taken after the 3rd day (Dewi, 2018).

Data Collection

The data was conducted in the Cisaat Community Health Center in Sukabumi from February to July 2019. Data collection was carried out with the help of 2 enumerators who were trained by researchers related to the action of the five finger relaxation technique.

Data Analysis

Statistical analysis used the Wilcoxon test and the Mann-Whitney test because the data were not normally distributed.

Ethical consideration

Ethical approval for this study was given by the internal ethics committee of the Sukabumi School of Health Sciences, study no. 50/004.e/IV/LPPM/2019. The researcher conducted the informed consent before consulting and giving questionnaires. Respondents had the right to participate in this research or not. The researchers contracted the place and time to discuss five-finger

relaxation and explain the benefits of implementing the five-finger relaxation technique in the intervention group. At the time of the research, researchers used a five-finger relaxation technique for the intervention group and did not use a five-finger relaxation technique for the control group. After conducting a posttest in the control group, the

researcher controlled the five-finger technique so that both groups received the same help. In this research, the respondents' answers to the questionnaire were only given their initials and codes. All collected information was approved by the researchers, only certain data would be obtained in the results of the study.

RESULT

Table 1. Characteristics of Respondents by Age, Gender, Education, Occupation and Duration of Diabetes Mellitus in the Control and Intervention Groups

Variable	Group				p-value
	Control		Intervention		
	f	%	f	%	
Age (WHO, 2018):					
36-45 years old	1	5.9	3	17.6	0.165
46-55 years old	10	58.8	11	64.8	
56-65 years old	6	35.3	3	17.6	
Gender:					0.052
Male	4	23.6	3	17.6	
Female	13	76.4	14	82.4	
Education:					0.097
Not attended school	5	29.4	2	11.8	
Elementary school	5	29.4	10	58.8	
Junior high school	7	41.2	5	29.4	
Senior high school	0	0	0	0	
College/University	0	0	0	0	
Occupation:					0.929
Employed	8	47.1	2	11.8	
Unemployed	9	52.9	15	88.2	
Duration of suffering diabetes mellitus:					0.604
1-3 years	6	35.3	9	52.9	
3-4 years	9	52.9	6	35.3	
>5 years	2	11.8	2	11.8	

The homogeneity test based on table 1 shows that the characteristics of age, gender, education, occupation and duration of suffering diabetes mellitus in the control group and the treatment group had p value > 0.05, meaning that there were no significant differences in the characteristics of age, gender, education, occupational and period suffered diabetes mellitus in both groups. Therefore, respondents' characteristics based on age, gender, education, occupation, and duration of suffering diabetes mellitus in the

control and treatment group respondents were homogeneous.

The data normality test was carried out on the pretest and posttest data in the intervention and control groups with the Shapiro Wilk Test with the test results of 0.84, 0.75, 0.66, 0.352 so that the data were not normally distributed and used the Nonparametric Test Wilcoxon Test and Mann-Whitney Test.

Table 2. Overview of Depression in the Control Group and Intervention Group

Group	Minimum Score of depression	Maximum Score of depression	Median score of depression	Difference	p value
<i>Control Group</i>					
Pre	14	23	18	0.00	0.008
Post	11	23	18		
<i>Intervention Group</i>				4.00	0.000
Pre	14	22	19		
Post	8	18	15		

Table 2 shows that the lowest score of the control group was 14 obtained in the pretest, while the highest score was 23. The median score was 18.00. Meanwhile, in the post-test, the lowest score was 11, while the highest score was 23. The median value was 18.00 with a difference of the two medians of 0.00. In the Intervention group, the lowest score of depression in patients with DM before the five-finger relaxation technique was 14, while the highest score was 22. The median value was 19.00. Meanwhile, the lowest score of depression level in patients with DM after the five-finger relaxation technique was 8, while the highest score

was 18. The median score was 15.00 with a difference of the two medians of 4.00.

The results of Wilcoxon test indicated p-value of 0.008 in the control group, or p-value <0.05 meaning H0 was rejected, so it could be said there was a decrease in depression of patients with DM in the control group. The results of Wilcoxon test indicated p-value of 0.000 in the intervention group, or p-value <0.05 meaning that H0 was rejected, so it could be stated that there was an effect of five-finger relaxation technique on depression in patients with Type 2 DM.

The Mann-Whitney test results indicated p-value of 0.000, or p-value <0.05, so it could be said there were differences in the level of depression of type 2 DM patients in the control and the intervention group. This was evident that the two groups experienced a decrease in the score, i.e. the intervention group (4.00) was higher than the control group (0.00).

DISCUSSION

This research showed that the five-finger relaxation technique could decrease the depression score among respondents in the intervention group. The five-finger relaxation technique will show positive results if routinely done. Changes that occur during relaxation or after relaxation affect the work of the autonomic muscles. This relaxation causes emotional responses and calming effects so that, physiologically, the sympathetic dominant nervous system becomes predominantly parasympathetic. According to Welz (1991) in Dewi, Rahayuwati, & Kurniawan, (2018), the combination of deep breathing technique and meditation carried out in the five-finger relaxation technique can stimulate the release of the neurotransmitter NO (nitric oxide), which can affect the performance of smooth muscles to relax and vasodilate blood vessels, which can increase blood supply to organs, increase metabolism in cells that produce energy so that the body will feel more energized and able to do various activities (Dewi et al., 2018; Dewi et al., 2020).

Depression is influenced by gender. One of them is because in dealing with problems, women are more sensitive than men. In addition, it can occur due to the influence of physiological changes, such as early onset of menopause or post menopause (Das, et.al, 2014). According to Kaplan and Sadock (1997) in Ayuni (2014) risk factors for depression are influenced by work. Physical activity and activities they do that can be a distraction from stress. Physical activity and daily activities have been shown to be powerful therapies for managing stress and depression. Patients whose daily activities do not work or have no activities are automatically prone to experience depression. The five-finger relaxation technique is useful in handling psychological disorders because patients with guided imagination can form shadows that can be accepted as stimuli by various senses so that by imagining something beautiful the feeling will be calm and relaxed. According to Nature, when the mind and body relax, the brain will increase the secretion of endorphin, melatonin and serotonin. These hormones function to reduce the level of depression of respondents. In addition, the five-finger relaxation technique can also affect heart rate, breathing, blood pressure, reduce muscle tension, strengthen memories and regulate stress-related hormones that will lead to depression. As a result, it can increase morale, make peace in the heart and reduce tension (Alfiyanti, Setyawan, Argo, & Kusuma, 2014).

Bown (1997) in Lindquist, Snyder, & Tracy, (2014) states that stressors cause muscle tension that sends a stimulus to the brain and creates a feedback path. The five-finger relaxation will inhibit this pathway by activating the work of the parasympathetic nerves and manipulating the hypothalamus through the concentration of mind in order to accelerate a positive attitude, so that stress stimulation against the hypothalamus is reduced. This is consistent with Nugroho, (2016) study entitled *The Effects of Five-Finger Relaxation Intervention Technique on Ca Mammae Client Fatigue*, indicating that the administration of five-finger relaxation technique is effective for dealing with depression

and sleep quality. In addition, this nursing intervention has also proven effective in dealing with depression, pain and sleep quality as symptoms and signs that are often found in cancer clients.

This research showed there were differences in depression in type 2 diabetes mellitus patients in the control group and the intervention group. This is evidenced by the difference in depression in the intervention group (4.00) significantly lower than the control group (0.00). The results of this research indicated differences in the control and intervention groups, in which the intervention group was given a five-finger relaxation technique therapy compared to the control group. It could be seen from the results of the daily logbook of the control group observed by the researcher that where all respondents prayed, recited dhikr and read the Qur'an in every prayer. According to Habiburrahman, Hasneli, & Amir, (2018), religious activities such as prayer, dhikr after 5-time prayers and reading the Qur'an can help provide a calming effect and can reduce blood glucose levels.

The intervention group was treated with the five-finger relaxation technique, which could significantly reduce depression compared to the control group without treatment. According to Greenberg (2010), relaxation can reduce stress and pressure caused by many problems. This is because the five-finger relaxation technique can relax respondents. The five-finger relaxation technique is a guided imagination distraction technique where the patient creates a pleasant shadow and concentrates himself/herself on the shadow and gradually frees himself from attention to the problems. The five-finger relaxation technique is able to reach the unconscious mind, the place where emotions proceed, so as to eliminate the emotional problems that exist in the subconscious mind (Davis, Eshelman, & McKay, 2008). In line with the results of the aforementioned study, a study of Muafiro states that the five-finger relaxation technique can reduce anxiety or psychological disorders in cervical cancer patients with p value = 0.00 (p <0.05) (Nugroho, 2016).

Limitations of the Study

In this study, the sample size of each group was small. Likely, if the sample size was larger, it would be more convincing that the five-finger relaxation technique reduced depression in DM patients. Control of daily activities only uses daily notes made by the respondents. If observations are made by researchers' daily activities, it will certainly strengthen the results that have been obtained and create research bias.

CONCLUSION AND RECOMMENDATION

The results of this research indicate that the five-finger relaxation technique can reduce depression in patients with type 2 diabetes mellitus. Therefore, it is expected that stakeholders of the Non-Communicable Disease program and Prolanis Program use the five-finger relaxation as a form of independent nursing intervention in providing nursing care to patients with type 2 Diabetes Mellitus and as a form of nonpharmacological therapy in overcoming nursing problems in the Cisaat Health Center.

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