Available on: http://nursingjurnal.respati.ac.id/index.php/JKRY/index
Jurnal Keperawatan Respati Yogyakarta, 8(2), May 2021, 72 – 78

THE BENAR RELAXATION THERAPY (BRT) DECREASING PSYCHOLOGIC SYMPTOMS IN DIABETES TYPE II IN CANDIBINANGUN DISTRIC

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Abstract

Diabetes prevalence in Yogyakarta is the second highest in Indonesia, and Diabetes sufferers are prone to experiencing physical and psychological disorders. Psychological disorders such as depression, stress, and anxiety are more at risk in Diabetes patients. This condition will be worsen the prognosis and outcome, so managing psychological disorders in Diabetes patients is essential. One of the efforts to manage mental disorders in Diabetes patients is non-pharmacological therapy such as Benar Relaxation Therapy (BRT). It combining between aromatherapy and Benson relaxation techniques which is effective for mild and moderate anxiety therapy. In this study, the BRT try to test the effectivity stress, anxiety, until depression. This therapy using three sickles of therapy and the dose of the aromatherapy was three drops in 20 ml of sterile water which formulated by the researcher. The aim study is evaluate the effect of Benar Relaxation Therapy (BRT) in reducing psychological symptoms in diabetes patients. This study did Quasi-experimental research with a pre-posttest without control group design. 14 adults Diabetes patients who ADL independently and have cellphones with video features in Candibinangun district purposively taken to this study. For three consecutive days, patients received therapy for 15 minutes. Their psychological symptoms were measured using the DASS 21 and PSQI questionnaires. Meanwhile, the measurement of physiological symptoms is to measure blood pressure, pulse, and blood glucose. The data processed using the T-test and Wilcoxon test according to the results of data normality. The results showed that Benar Relaxation Therapy effectively reduced psychological symptoms in the form of depression (p = 0.038) and improved sleep quality (p = 0.042). Physiologically, this therapy was also effective in lowering blood pressure (p = 0.00). However, this therapy is not significant in reducing psychological and physiological symptoms in stress, anxiety, pulse, and blood glucose levels. The conclusions is the Benar Relaxation Therapy in this study was effective in lowering depression scores and blood pressure. This therapy also improves the quality of sleep in type 2 Diabetes patients. However, this therapy significantly increases the patient's stress and anxiety and has no significant effect on pulse and blood glucose levels.

Keywords*: Benar Relaxation Therapy; Psychologic Symptoms*

Article info: *Sending on April 02, 2021; Revision on May 29, 2021; Accepted on June 10, 2021*

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1. Introduction

Psychological stress is a condition that is common in someone who experiences physiological pain. Mental stress is also a risk factor for a person to develop a disease or predict the progress of a disease (Hackett & Steptoe, 2017). One of the global health problems that is challenging the world today is Diabetes. Diabetes is a non-communicable disease whose prevalence has increased drastically, especially in developing countries. It is estimated that in 2040, the number of DIABETES sufferers will reach 642 million people worldwide (Smith, Deschenes, & Schmitz, 2018). The number of diabetes sufferers in Indonesia is currently number four throughout the world, and in 2030 the same conditions will still occur as it is today (Kemenkes.RI, 2019). Diabetes Mellitus prevalence in Yogyakarta is the second highest in Indonesia, diabetes is also one of the highest non-communicable diseases,along with hypertension and cancer in DI Yogyakarta (PemkotYK, 2019; Kemenkes.RI, 2019).

Diabetes sufferers are susceptible to disorders, both physiological and psychological. Based on research conducted by Bener et al., mental disorders such as depression, anxiety, and stress in the type II diabetes group were indeed higher in prevalence compared to the control group (Bener, 2011). Other studies also confirm that diabetes patients are at risk of experiencing mental disorders such as depression by 2-3 times (Bădescu et al., 2016; Smith et al., 2018). The risk of a person experiencing mental disorders during life is around 50%, and this can later

result in conditions of decreased performance, productivity, and income (Bădescu et al., 2016). The prevalence of depression incidence is 3: 1 in type 1 diabetes and 2: 1 in type 2 diabetes. At the same time, anxiety occurs in about 40% of DIABETES patients, both types 1 and 2. These depression and anxiety conditions will worsen the prognosis of diabetes disease, increase incompliance with treatment, reduce the quality of life, and increase mortality in diabetes patients (Bădescu et al., 2016).

The ability of stress to interfere with physiological processes such as growth, reproduction, and immune competence related to several diseases such as heart disease, type 2 diabetes, depression, and anxiety is well known (Jayasinghe, Torres, Nowson, Tilbrook, & Turner, 2014). People with increased stress continuously have the potential to develop anxiety and depression. (Jayasinghe et al., 2014). Psychological stress will drive the body's biological responses in diabetes patients, such as the release of glucose and lipids into the circulation, expression of inflammatory cytokines, and an increase in blood pressure (Hackett & Steptoe, 2017).

Management to reduce physiological and psychological stress in diabetes patients has been widely used. Benson technique and aromatherapy are two examples of non-pharmacological therapies that have been widely used to reduce physiological and psychological symptoms in patients with chronic or acute illness (Otaghi, Borji, Bastami, & Solymanian, 2015; Sánchez-Vidaña et al., 2017). This study aims to see the effect of the Benar Relaxation Therapy (BRT) in reducing psychological symptoms in patients with type 2 diabetes mellitus (DIABETES).

2. Methods

This study was quasi-experiment without a control group. The population was 20 person. However 3 person did not want to continue the therapy because they refused to use the aromatherapy and 4 person were incomplete filling the form. Finally, there were 14 patients in Candibink uj[hn;angun Pakem who had BRT in 3 days for completing the therapy. Benar Therapy was a therapy that combining between Benson Relaxation and Inhalation Lavender Aromatherapy. It was called Benar Relaxation Therapy. This study used 14 patients with inclusion criteria were ≥ 35 years old; the phone had video platform application and independence ADL. They recorded the therapy and gave it to the cadre. After that, the cadre gave to the researcher to proof that they did the therapy. Moreover, this study also had exclusion criteria; there were severe dementia and mental disorder. The instruments used DASS 21 to know the depression, anxiety, and stress score. PSQI used to know sleep quality patients. Besides psychology symptoms, the study also saw physiology symptoms such as blood glucose, pulse, and blood pressure. It used a T-test for normal data distribution and Wilcoxon for data, which is not a normal distribution. T-test for blood glucose, blood pressure, and pulse; and Wilcoxon test used for anxiety, stress, and depression. Because of Covid-19 Pandemic, the intervention was done by using video which it was reviewed by mental health specialist before. Before the intervention, this study had ethical approval from Health Faculty of Jenderal Achmad Yani Yogyakarta University with a number: *Skep/010/KEPK/II/2020*.

Every session was needed for 15 minutes. It took once a day, and they got three days in therapy. The steps of this therapy are: First, drops three pure lavender essential oil in 20 ml of sterile water. Second, put the mixture in a. Third, and these bottles of mixed aromatherapy into the diffuser and put it in 10 – 30 cm from your position. Next, sit or lie down calmly and close your eyes. Then, take a depth breath and breathe regularly with calmly. After that, say to yourself, "I accept it in whole-hearted." Say it calmly in your heart many times. Don't let your negative though inside at your head. Take a depth breath comfortably and confidently. Let your body felt comfortable and relax. Opened your eyes and don't move from your place at least 2 minutes.

3. Results

Table 1. Frequencies of demographic data

Characteristic		N (14)	100%	Mean (SD)
Age (Year)	Adult (36 – 59)	9	64.28	59,42
	Elderly (≥60)	5	35.72	(1.00)
Gender	Male	4	28.6	
	Female	10	71.4	
Jobs	Farmer	2	14.3	
	Entrepreneur	2	14.3	
	Not working	10	71.4	
Education	Elementary	1	7.1	
	Junior high school	3	21.4	
	Senior high school	6	42.9	
	Not educated	4	28.6	
Complication	Yes	3	21.4	
	No	11	78.6	
Sport	Yes	11	78.6	
	No	3	21.4	
Duration of illness (Year)	0 – 5	6	42.86	8 (7.08)
	6 – 10	6	42.86	
	> 10	2	14.28	
Medical treatment	Yes	12	85.71	
	No	2	14.29	

Based on data, it was shown that the adult was 28.56% bigger than the elder. There was 59.42 (SD: 1.00) in the average of age. The majority of the respondents were female. There were 71.8%. Besides, the majority of the respondents were no

jobs, including housewives and retired. There was 71.4%. The table also showed that the educated respondents were 71.4%. However, it was still any respondents who graduated in elementary school only with 7.1%. Last, the majority of the respondents had no complications, and they still got a sport at least 30 minutes each day, with 78.6%.

Table 2. Wilcoxon Test

Variables	Intervention	Median (Min-Max)	P-Value (Sign. <0.05)
Pulse	Pre Intervention	85.28 (68 – 109)	0.7
	Post Intervention	86.5 (70 – 96)	
Sleep	Pre Intervention	1,5 (0 – 7)	0.042
Quality	Post Intervention	1 (0 – 1)	
Depression	Pre Intervention	2 (0 – 4)	0.038
	Post Intervention	0 (0 – 4)	

Table 3. T-Test Result

Variables	Intervention	Mean (SD)	P-Value (Sign. <0.05)
Blood Glucose	Pre	2.58 (112.88)	0.789
	Post	2.50 (82.79)	
Systole	Pre	143.29 (17.62)	0.00
	Post	134.79 (9.49)	
Diastole	Pre	82.07 (15.14)	0.00
	Post	76.85 (4.77)	
Anxiety	Pre	3.86 (2.77)	0.00
	Post	9.29 (2.56)	
Stress	Pre	3.0 (3.98)	0.005
	Post	7.43 (2.77)	

Tables 2 and 3 showed the different tests of the psychologist's symptoms with the physiologic effect. There were 13 variables that got pre and post-test. It used the Wilcoxon test for data, which was not normal distribution and T-test for normal data. The Wilcoxon test was used for a pulse, quality of sleep, and depression. There had a significant value for depression (p: 0.038) and quality of sleep (p: 0.042). However, there was no effect on the pulse with p: 0.7. It meant that the BENAR therapy had an effect of reducing the depression and increasing the quality of sleep, but it had not for the pulse. Table 3 showed the T-test result in five categories. This therapy was good for blood pressure with p-value 0.00 both systole and diastole. However, it was also surprisingly increasing the anxiety and stress with p-value 0.00. Other than that, this therapy also had not to affect blood glucose (p: 0.789), but there was a decreasing mean in pre and post-intervention. There was 0.08 blood glucose difference mean.

4. Discussion

This study aims to see the effect of BRT to reduce psychological symptoms in type 2 diabetes patients. Psychological symptoms are seen from the scores of anxiety, stress, depression, and sleep disorders. These symptoms are also confirmed by vital signs, including blood pressure, pulse, and blood glucose levels.

The BRT was designed to combine the two ways of working of BENson technique and ARomatherapy, which used lavender essential oil in this study. Benson is a relaxation technique that has been widely applied and proven to reduce psychological symptoms related to stress, depression, and anxiety. Several studies showed that Benson's effectiveness in reducing depression, anxiety, and anxiety. Some of them were Yunita et al. (2015) which stated that Benson is effective in reducing depression in hemodialysis patients, Tahmasbi and Hasani (2016) who said Benson is effective in reducing anxiety in coronary patients angiography, and Otaghi et al. (2016) which stated that Benson could reduce stress and anxiety in hemodialysis patients (Otaghi et al., 2015; Tahmasbi & Hasani, 2016; Yunita, Harmila, & Kustanti, 2015).

Benson said that relaxation is defined as a physiological and homeostatic state which counteracted to that is triggered by stress. Benson Relaxation was a non-pharmacological, behavioral method devise to cope with anxiety. This method was focused on meditation as a basic skill (Ibrahim et al., 2019). Meditation was a relaxation that induce a pleasant and deep relaxed state of body and mind. This method helps the patients to get their balancing physiological abnormalities and promote healing (Hussain & Bhushan, 2010). The special session for this technique includes the following steps: sitting in a comfortable position, closing the eyes, profoundly relaxing all the muscles, starting from the legs and continuing to the face, breathing through the nose while being aware of one's breathing, continuing this exercise for 20 minutes, and finally sitting still for a few minutes, first with your eyes closed and then with your eyes open (Ibrahim et al., 2019). The Benson technique's mechanism of action is to inhibit the regulation of the hypothalamus, inhibit sympathetic nervous activity, and reduce adrenaline secretion. By inhibiting the sympathetic nervous system's activity, the consumption of oxygen in the organs of the body will decrease, and the muscles relax so that a feeling of calm arises in the patient (Otaghi et al., 2015; Yunita et al., 2015).

Besides meditation, BRT also uses inhalation lavender aromatherapy. This study uses a dilution method in which 3 drops pure lavender are diluted with 20 ml of sterile water. Aromatherapy is added as a booster for the Benson technique in this BENAR therapy. Aromatherapy is defined as the therapeutic use of concentrated plant-derived essences that are extracted by distillation (Rajai et al., 2016). Aromatherapy is an inexpensive and non-invasive modality therapy used to improve health and psychological well-being by inhaling essential oils

(Bikmoradi et al., 2017; Rajai et al., 2016). This aromatherapy method is also called olfactory aromatherapy. Next, it uses a diffuser to vaporize in the atmosphere of a certain area. The molecules in the air are quickly absorbed by the bloodstream. On the other hand, the limbic system works at the same time. It perceives and responds to pleasure, memory, and emotion. Because it is triggered by the aromas of lavender oil (Gaware et al., 2015), further, in inhalation aromatherapy, the inhaled air can not only reach the circulatory system through the network of nose blood capillaries and bronchi in the lungs but also stimulate the brain area directly through the olfactory epithelium. The essential oil triggers a mechanism in the brain via the olfactory system. The mechanism of action of essential oils adiabetesinistered by inhalation involves the stimulation of olfactory receptor cells in the nasal epithelium, about 25 million cells connected to the olfactory bulb. After stimulation, signals are transmitted to the limbic system and hypothalamus in the brain via the olfactory bulb and olfactory duct. Once the signal reaches the olfactory cortex, the release of neurotransmitters, for example, serotonin, occurs, which results in the expected effect on emotions associated with the use of essential oils (Sánchez-Vidaña et al., 2017).

The BRT uses lavender as the main ingredient for aromatherapy. Lavender, which has the scientific name Lavendula Spica L., is often used as an aromatherapy ingredient. Lavender contains linalyl acetate. Lavender oil has many functions, such as antibacterial, antifungal, carminative, sedative, and antidepressive. Lavender oil also reduces anxiety, improves sleep, relieves headaches and migraines, and calms the heart rate. This plant increases the heart's work, stimulates blood circulation, and relaxes mental health (Rajai et al., 2016).

Based on the Wilcoxon test (table 2) shows that the therapy is effective in decreasing sleep quality and depression. It means that this therapy has a positive effect on sleep quality and depression patients with diabetic type II. It can be sawn for sleep quality with $p = 0.042$ ($p<0.05$). This result is still in line with Habibollahpour, Ranjkesh, Motalebi, & Mohammadi (2019) that sleep quality in the elderly gets better than the control one with Benson relaxation technique. This is also conducted with Masry, Aldoushy, & Abd. (2017) that Benson's relaxation technique is effective in decreasing sleep disturbance for adults and elderly with undergoing joints replacement surgery. Sleep disorder has a consequence of decreasing concentration, memory disorder, and weakness. It happened because of decreasing the depression of the patients. Besides, this therapy is a reduction the muscular tension, cortisol level, and blood lactate (Habibollahpour et al., 2019). This study also mixes with inhalation lavender aromatherapy, which has an effect on relaxation, such as calming and sedative (Gaware et al., 2015). These findings are consistent with Keshavarz Afshar et al. (2015) that the Lavender fragrance essential oil fix the sleep disturbance of postpartum women in 8 weeks follow up. The aromatherapy is attributed to the stimulation of the liqueur system, and neurobiological changed. The linalool acetate in the lavender has a narcotic function; as a result, it has a sedative effect for clients.

Besides improving sleep quality, this therapy is also decreasing depression for people who have diabetic type II. Similar result was obtained by Sahrakhil, Nasrabadi, & Ebrahimi Abyaneh (2017) that Benson relaxation technique is improving the comfort level of patients before coronary artery bypass grafting with a clinical trial. The other study said that this relaxation decreased the depression score in the elderly social service unit (Wulansari, Margawati, & Hadi W, 2018). The result congruent with the theory that this method decreases muscular tension, heart rates, respiratory rate, and blood pressure as along with the use of inhalation lavender aromatherapy (Sahrakhil et al., 2017).

The T-test results of BENAR therapy, the systole and diastole were significant difference with $p = 0.00$. These results are following the results of Salamati et al. (2017) which stated that there were significant differences in systolic blood pressure ($p. <0.001$), diastole ($p = 0.001$), and heart pulse ($p = 0.03$) in patients undergoing open-heart surgery before and after lavender aromatherapy inhalation (Salamati, Mashouf, & Mojab, 2017). The study of Gultom et al. (2016) also supports this result where systolic ($p. <0.001$) and diastolic ($p. <0.001$) blood pressures decreased in hypertensive patients after being given lavender aromatherapy (Gultom, Ginting, & Silalahi, 2016). Research by Atmojo et al. (2019) states that there are significant differences in systole ($p. <0.001$) and diastole ($p. <0.001$) in hypertensive patients before and after being given Benson relaxation (Atmojo, Putra, Astriani, Dewi, & Bintoro, 2019). Tahmasbi and Hasani (2016) also stated that there were significant differences in systolic blood pressure ($p. <0.001$) and diastole ($p = 0.1$) in patients undergoing coronary angiography with the same technique (Tahmasbi & Hasani, 2016).

Meanwhile, there was no significant difference in pulse between before and after giving BENAR therapy intervention ($p = 0.07$). This result is inconsistent with Salamati (2017) research and Tahmasbi and Hasani (2016). However, these results are in accordance with Nategh and Bikmoradi's study, which states that there is no significant difference in pulses results before and after the intervention (Bikmoradi et al., 2017; Nategh, Heidari, Ebadi, Kazemnejad, & Beigi, 2015). The results' fishery insignificance could be due to too small a sample size, too short intervention time, or an uneven

sex proportion. In people with DIABETES, the pulse rate can be lower, especially in women (Sammito & Böckelmann, 2016).

An insignificant result was also found on blood glucose levels (p = 0.789). These results are not per research that states that lavender can prevent an increase in blood glucose levels (Sebai et al., 2013), and research which states that the Benson relaxation technique can reduce fasting blood glucose levels after the intervention (Ali & Hosien, 2017). The blood glucose level before BENAR therapy was 258.00 and after treatment was 250.60. The average blood glucose level of respondents before and after therapy was still in the high category, although it had decreased slightly. The discrepancy in these results could be because the researcher did not control the patient's environmental conditions, feelings, or medication compliance. The results showed that the stress score and anxiety score increased could also be one reason why blood glucose levels were still high in this study. When the body experiences physiological stress, glucose levels will rise, and when experiencing psychosocial stress. Psychosocial stress does not always increase blood glucose levels, but if this stress occurs every day and for a long time, it will increase blood glucose (Krishna, 2018). Diabetes is a chronic disease condition, being a diabetic is stressful, but stress will also worsen diabetes. Anxiety conditions will also interfere with the metabolic process and increase the risk of complications in DIABETES patients. Most DIABETES management does not include measurements of the patient's mental health from the start, even though DIABETES patients are very at risk of developing mental disorders, including depression (Krishna, 2018).

However, the anxiety and stress score increases effectively. It means that this therapy increasing effectively for anxiety p=0.00 (p<0.05) and stress p=0.005 (p<0.05). Chamine & Oken (2015) said that Benson relaxation technique did not have an effective effect on anxiety in hemodialysis patients. Anxiety was an emotion which made unconvertable feeling for people because of the unclear source (Annisa & Ifdil, 2016). APA said that anxiety was an emotion that was characterized by a feeling of tension, worried thoughts, and physically changed like increased blood pressure (APA, 2020). There are many factors which influence anxiety and stress level. Sendhilkumar et al. (2017) said that stress in diabetic is associated with professional jobs, physical activity, family conflict, financial concerns, and disease-related issues. Related to its article, patients' cognitive, duration of illness, personality, and finances are also the influence of anxiety and stress (Siregar & Hidajat, 2017). This result of this study is congruent with this article. Respondents have 0-5 duration of a diabetic. The majority also do not have complications yet of this disease.

5. Conclusion

Based on the result, the BENAR Relaxation Therapy (BRT) is reducing psychological symptoms such as depression and increasing sleep quality. Besides psychological symptoms, this therapy is also decreasing blood pressure effectively. BRT could be used for nursing intervention in relaxation therapy. It is easy to be used including for elderly. The limitation of the study is conducted in one district, so the generalizability of the result may be limited. In relation to data collection, the uncomfortable event for respondents is has been unpreventable—possible effects of the result in this study, such as anxiety and stress, which had short onset. Future study is necessary to describe different relaxation onset (more than three times) to know the effects of BENAR therapy.

6. Acknowledgments

Thank you for the Research and Technology Minister of Indonesia for the fund in this study. The Candibinanguns cadres' who help to take the data in this study when Covid-19 pandemics happened.

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