

The Effect of Relaxation Guided Imagery and Foot Massage Techniques on Anxiety Level in Stroke Patients

Riena Edelweis¹, Suharyo Hadisaputro², Rr. Sri Endang Pujiastuti³

¹Master of Applied Health in Nursing Department of Poltekkes Kemenkes Semarang

²Postgraduate Program of Health of Poltekkes Kemenkes Semarang

Email¹ : riena.ieren.edelweiss@gmail.com

Abstract

Stroke causes paralysis of one side of the body (hemiplegia). Powerlessness reduces the enthusiasm of life, causing emotional changes in the form of anxiety. Various interventions can be done to overcome this condition, including both pharmacological and non-pharmacological. Examples of the non-pharmacological interventions are the relaxation guided imagery and foot massage. This research design used an experimental study with non-equivalent control group design. The sample size of 60 respondents consisted of 3 groups and 1 control group with each group consisting of 15 respondents. This study used univariate data analysis with frequency distribution tables, bivariate analysis with paired *t*-test for paired groups and unpaired groups used independent *t*-test with significance level ≤ 0.05 . The results showed that relaxation guided imagery or foot massage and the combination of both affected anxiety with *p*-value 0.01; there is a difference in the group before doing the treatment value *p*-value 0.812

Conclusion: stroke patients who are given an intervention for 30 minutes for 2 weeks along with standard treatment can reduce anxiety on a mild scale.

Keywords: Relaxation Guided Imagery, Foot Massage, Anxiety, Stroke

Abstrak

Stroke menyebabkan kelumpuhan sebelah bagian tubuh (hemiplegia). Ketidak berdayaan seringkali menurunkan semangat hidup pasien stroke sehingga muncul dampak emosional berupa kecemasan. Berbagai intervensi dapat dilakukan untuk mengatasi kecemasan baik dengan farmakologis dan non farmakologis, salah satu intervensi non farmakologis adalah teknik *relaxation guided imagery* dan *foot massage*. Desain penelitian ini menggunakan studi *quasy experiment* dengan rancangan penelitian *non-equivalent control group design*. Besaran sampel 60 responden terdiri dari 3 kelompok perlakuan dan 1 kelompok kontrol dengan masing-masing kelompok terdiri dari 15 responden. Analisis data secara univariat dengan tabel distribusi frekuensi dan analisis bivariat dengan *paired t*-test untuk kelompok berpasangan, untuk kelompok tidak berpasangan menggunakan *independent t*-test dengan taraf signifikansi ≤ 0.05 . Hasil menunjukkan pada 3 kelompok perlakuan teknik *relaxation guided imagery*, *foot massage* dan kombinasi berpengaruh terhadap kecemasan diperoleh nilai *p*-value 0.01, terdapat perbedaan pada kelompok sebelum dilakukannya perlakuan nilai *p*-value 0.812. Pasien stroke yang diberikan intervensi 1 kali 30 menit dalam 2 minggu bersama dengan pengobatan standar dapat menurunkan kecemasan pada skala ringan.

Kata Kunci : Relaxation Guided Imagery, Foot Massage, Kecemasan, Stroke

BACKGROUND

Stroke is a cerebrovascular disease that often occurs, because a stroke causes paralysis of one part of the body (hemiplegia). Paralysis of the right or left side of the body depends on the damage to the brain. Stroke is the third leading cause of disability and death after coronary heart disease and cancer. Price & Wilson (2012) stated that stroke is a sudden neurological disorder that occurs due to restriction, narrowing or interruption of blood flow through the arterial supply system of the brain.

Stroke patients are unable to perform ac-

tivities independently, mostly difficulty of controlling emotions. Anger, sad, and helpless often reduce the life enthusiasm of stroke patients so that the emotional impact of anxiety is more dangerous. Widarti (2017) explains that sufferers easily feel fear, anxiety, anger, and sadness over their physical and mental deficiencies. This situation is a form of unpleasant emotions experienced by stroke patients because they feel excessive worry about the possibility of bad things that will happen.³

World Health Organization (WHO) published that 51% deaths related to stroke were

caused by high blood pressure in 2012. The World Health Organization (WHO) also reported that in 2016, 17.5 million people died due to cardiovascular disease (CVDs) which 6.7 million of them died caused by stroke. WHO predicts in 2025, approximately 800 million people or one in ten people, will be died due to CVDs, including stroke.⁴ *Centre for Data and Information, Ministry of Health RI* reported that in 2013 the number of stroke sufferers in Indonesia was estimated around 1.236.825 people (7.0 %), whereas based on the diagnosis of health / symptoms 2,137,941 people (12.1 %) have stroke. In addition, the province of West Kalimantan has an estimated number of stroke suffers about 17,821 people (5.8%).⁵ Data from Bhayangkara Anton Soedjarwo Hospital Pontianak, from January to December 2017 the number of stroke patients was 114 people.⁶

Based on the high prevalence of stroke, a significant psychological problem is found. Stroke makes the patient feel inferior and useless due to disability and causes a subjective feeling or anxiety that causes anxiety.⁷ Anxiety is the first reaction that is raised or felt by the patient.

Kholil (2010) published anxiety is a subjective feeling about mental tension, anxious feeling as a general reaction to the inability to overcome a problem. Anxious feelings are generally unpleasant which cause or accompanied by physiological and psychological changes.⁸ People experiences anxiety because of uncertainty in the future and thinking about something unpleasant that will happen.⁹ According to Videbeck (2008), anxiety is a feeling of fear that is not clear and is not supported by the situation.¹⁰ Anxiety experienced by stroke patients can also be caused by the influence of physical brain damage. Disruption of activity / mobility experienced by stroke patients for a long time can result in psychological impacts, especially can increase anxiety. Kustiawan (2015) reported that the long illness conditions experienced by patient will cause anxiety and even panic as a response to basic needs.¹¹ Nurses as providers of nursing services that meet biological, psychological, socio and spiritual needs must be able to manage anxiety in patients.

Based on research conducted in the Tasikmalaya City General Hospital by Kustiawan (2014) showed that 28 respondents (71.8%) experience moderate anxiety levels, 7 respondents (17.9%) experience severe anxiety, and mild anxiety with 4 respondents (10.3%). Anxiety due to the risk of disability and death in stroke patients can result in disruption of the treatment and rehabilitation process.¹¹ Research conducted by Anggraeny (2013) shows that stroke patients have moderate anxiety in carrying out activities independently which will reduce their functional abilities.¹² Anxiety conditions experienced by stroke patients is a response to basic needs.

Anxiety management can be done with pharmacological therapy, according to Isaacs

(2008), anti-anxiety treatment, especially benzodiazepines, is used for a short time, because this treatment causes tolerance and dependency. Non-benzodiazepine anti-anxiety drugs, such as buspirone (Buspar) as an antidepressant can also be used.¹³ While non-pharmacological therapy according to Potter & Perry (2010), utilized the distraction method to eliminate anxiety by diverting attention to other things so that patients will forget about anxiety experienced. Stimuli of pleasant sensory causes release of endorphins which inhibit anxiety stimuli resulting in less anxious stimuli transmitted to the brain.¹⁴ Further non-pharmacological therapy is relaxation. According to Isaacs (2008), relaxation can be in the form of meditation, imagination and visualization relaxation and also progressive relaxation.¹⁵ Siahaan (2013) explains overcoming anxiety can be used relaxation techniques such as massage / massage on certain body parts for several times, listen to soothing music, and write a diary which cause the patients feeling calmer.¹⁵

Anxiety felt by stroke patients can be overcome by using relaxation techniques.¹⁶ Example of relaxation types that can be done in stroke patients are relaxation guided imagery and foot massage. Relaxation guided imagery will create shadows that will be received by various senses, then by imagining something beautiful, then they will be calmer. Tension and discomfort will be removed, causing the body to become relaxed and comfortable.¹⁵

Relaxation guided imagery uses individual imagination which directed to reduce anxiety. The benefits of this technique are behavioral interventions to deal with anxiety, stress, and pain.¹⁶ In the other hand, Chanif (2016) has mentioned foot massage therapy is one of the therapies that can be done by nurses or families in order to provide relaxation for patients. This therapy is safe for patients and does not require expensive costs. Since foot massage can improve blood circulation throughout the body including the brain, blood supply to the brain and the whole body is fulfilled.¹⁸ Adequate blood supply in the brain causes the brain to function properly and can provide a relaxing effect so that patients feeling comfortable directly reduces anxiety. Foot massage is a manipulation of the soft tissues of the feet in general and is not concentrate at specific points on the soles of the feet associated with other parts of the body.¹⁹ This manipulation consists of 5 basic techniques namely effleurage (rubbing), petrissage (massage), tapotement (massage) stroke), friction, and vibration.²⁰ The benefits of foot massage are increasingly clearly identified and categorized as physical and mental emotional benefits.²¹

METHOD

This study uses a quasy experiment model with equivalent control group design as a research

design. The quasy method was chosen because this study did not fully control the factors that influence anxiety. The sample size is 60 respondents which consisted of 3 treatment groups and 1 control group with each group consisting of 15 respondents. Interventions were given 30 minutes per day for 14 days. This study used univariate data analysis with frequency distribution tables, bivariate analysis with paired t-test for paired groups, and unpaired

groups used independent t-test with significance level ≤ 0.05 .

RESULTS

1. Analysis of confounding variables

The distribution of the characteristics of respondents in the study including the age, education, and occupation of stroke patients as follows:

Table 4.1 Frequency and Distribution of Respondent Characteristics

Variables		Intervention Group		Control Group		<i>p</i> value
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)	
Age (year)	20 – 40	1	0.01	0	0	0.492
	41 – 60	28	46	10	16	
	> 60	16	26	5	0.09	
Education	Elementary school	0	0	0	0	0.931
	Junior high School	10	17	0	0	
	Senior high school	19	31	0	0	
	University	16	27	15	25	
Occupation	Occupied	19	31	15	25	0.843
	Not occupied	26	44	0	0	

*) Homogeneous test

The respondents were defied into three groups based on their ages (20-40, 41-60, and >60 years). As can be seen on the table 4.1, the intervention group had 1 person (0.01%) aged 27 years, 28 people in group of 41-60 years (36%) and > 60 years as many as 16 people (26%). The control group respondents had 10 people (16%) 41-60 years and 5 people (0.09%) in group of > 60 years. The effect of different age of respondents in intervention and control group has value of 0.492 with p -value ≥ 0.05 . Then, it can be concluded that different ages have the same / homogeneous equality.

Table 4.1 shows that in the intervention groups, there was 19 people (31%) with high school degree, 10 have junior high school degree (17%). Besides, in control group, there were 15 persons with university degree (25%). Education obtained a value of 0.931 with a value of p -value ≥ 0.05 so it can be concluded that education has the

same homogeneous equality.

The number of respondents who has occupation was higher than total respondents who did not have any job in both intervention and control group with the percentage 31% and 25% (19 and 15 persons), respectively. The number of respondents in intervention group who did not work was 26 people (44%). The work obtained a value of 0.843 with p -value ≥ 0.05 , therefore it can be concluded that occupation status has the same / homogeneous equality.

2. Analysis of the dependent variable

The table below provides an overview of number of people with anxiety before and after treatments with guided imagery, foot masage, combination of both and control groups using a paired t-test statistical test.

Table 4.2 Mean of people with anxiety before and after treatment

Treatments	Variables		Score difference Δ
	Before Mean \pm SD	After Mean \pm SD	
Guided Imagery	63.73 (\pm 3.150)	52.07(\pm 3.918)	11.670
Foot Masasge	63.13(\pm 2.446)	49.07(\pm 3.807)	14.067
Combination	62.80(\pm 3.005)	41.47(\pm 1.959)	21.333
Control	63.47(\pm 2.446)	54.67(\pm 3.352)	8.800
<i>p-value</i>	0.812	0.000	

*) Paired T-test test

Table 4.2 describes the difference between the number of people with anxiety before and after treatment. The mean value of correspondents who have anxiety was 63.73 (\pm 3,150) before guided imagery treatment, and after treatment the mean value decreased for 11,670 until received 52.07 (\pm 3,918). In addition, group with foot massage treatment, had mean value of 63.13 (\pm 2,446) before the treatment, while reached 49.07 (\pm 3,807) after treatment with a difference of 14,067. In the other hand, group which will be received the combination treatments had mean value of 63.47 (\pm 2.446) before treatment, while after treatment, a mean value of 54.67 (\pm 3.352) was obtained with a difference of 8,800. Statistical test obtained p-value 0.00 or less than 0.05 so it can be concluded that there are differences in anxiety levels between groups.

DISCUSSION

Anxiety level in the intervention group in this study decreased by an average of 13.3%. The results of this study are in line with research conducted by Purnama (2015) which proves that the guided imagery treatment able to reduce the anxiety for about 40.74% on the participants who approaching childbirth.

Research conducted by Kaur, Kaur, Bhardwaj (2012) had mentioned that foot massage decreased the heart rate into the normal rate of the respondents. He observed that the intervention group showed the average heart rate and respiration speed were decreased. It was found that patients who received massage interventions had their systolic blood pressures lower due to activation of the parasympathetic nervous system which results in a decrease in physiological responses so that the patient feels more relaxed.²³

Relaxation with guided imagery techniques will make the body more relaxed and comfortable during sleep. By doing slowly deep breathing, the body will become more relaxed. Feeling relaxed will be passed on to the hypothalamus to produce Corticotropin Releasing Factor (CRF).

CRF stimulates the pituitary gland to increase production of Proopiomelanocortin (POMC) so that the production of enkephalin by the adrenal medulla increases. The pituitary gland can also produce endorphins as neurotransmitters that affect the mood to relax.²⁴ Foot massage stimulates nerve fibers, smoothing blood circulation to the brain and oxygen supply fulfilled. Foot massage provides a relaxing effect on muscle and nerve tissue. After doing relaxation guided imagery and foot massage their relaxation response appears in the parasympathetic and autonomic nerves that affect the pulse, breathing and controlled blood pressure.

The difference in anxiety level in this study was influenced by several things, such as environmental factors, family support, physical condition, knowledge, belief factors also affect the level of anxiety. So the anxiety level varies in each patient.

The effectiveness of relaxation guided imagery on anxiety reduction in stroke patients

The results of the study showed that relaxation guided imagery for 14 days was proven to be effective in reducing anxiety levels in stroke patients. The ρ value of the level of anxiety between the intervention group and the control group is 0.00. It was concluded that the effectiveness of relaxation guided imagery is very beneficial for stroke patients.

Kaplan & Sadock (2010) mentioned that guided imagery therapy is a method of relaxation to imagine places and events related to a pleasant sense. Smeltzer & Bare (2010) argued that guided imagery is used to manage coping by imagining something that starts with the process of relaxation in general, started by asking clients to slowly close their eyes and focus on their breath, encouraging to relax, empty the mind and fill the mind with a shadow to feel peace and calm.²⁰

3. Effectiveness of foot massage on anxiety reduction in stroke patients.

Provision of foot massage for 14 days, proven

effective in reducing anxiety levels in stroke patients. The ρ value of the level of anxiety between the intervention group and the control group is 0.00. It was concluded that the effectiveness of foot massage is very beneficial for stroke patients.

Afianti (2017) showed that the foot massage as an intervention which was used in critical patients, was able to stimulate circulation of the blood which can make the patients comfortable, relaxed, and has a positive mind.²⁵ Foot nerve sensors respond to foot massage which increases the neurotransmitters serotonin and dopamine whose stimulation is passed on to the hypothalamus and produces Corticotropin Releasing Factor (CRF). It then stimulates the pituitary gland to increase the production of Proopiomelanocortin (POMC) which leads the adrenal medulla to increase the secretion of endorphins that activate the parasympathetic vessels and thus occur in the vasodilation smooth blood flow so that the tense muscles relax.²⁵

4. The effectiveness of a combination between relaxation guided imagery and foot massage to reduce anxiety in stroke patients

Giving a combination of relaxation guided imagery and foot massage techniques for 14 days has been proven to be effective in reducing anxiety levels in stroke patients. The results showed the ρ -value of anxiety level between the intervention group and the control group was 0.00. It was concluded that the effectiveness of the combination of relaxation guided imagery and foot massage techniques was very beneficial for stroke patients. There is a significant difference in reducing anxiety level where the results of the average anxiety after the combination of relaxation guided imagery and foot massage techniques is 41.47 with a standard deviation of 3.352.

CONCLUSION

The intervention of relaxation guided imagery techniques and foot massage which were carried out every day for 14 days with a duration of 30 minutes in non-hemorrhagic stroke patients is proven to be effective in reducing anxiety levels.

SUGGESTIONS

1. Nurses and health workers
The results of this study can be used as consideration for the development of nursing interventions for non-pharmacological measures in overcoming anxiety in stroke patients.
2. Further researchers
This study can be continued further in order to understand the benefits of relaxation guided imagery and foot massage for other physical and psychological conditions.
3. Educational institutions
The results of this study are expected to be a reference for the development of nursing

interventions for non-pharmacological measures in overcoming anxiety in stroke patients.

4. The community
The results of this study are expected to be additional scientific evidence regarding the impact of relaxation guided imagery and foot massage in overcoming anxiety in stroke patients.

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