ORIGINAL RESEARCH

EFFECTIVENESS OF SLOW STROKE BACK MASSAGE ON FATIGUE OF HEMODIALYSIS PATIENTS AT RSAU DR. M. SALAMUN BANDUNG IN 2024

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Abstract

Background: Chronic Kidney Disease (CKD) involves the gradual deterioration of renal function, resulting in the accumulation of metabolic waste and excess fluids, known as uremia. Hemodialysis serves as a renal replacement therapy that cleanses the blood by passing through an artificial kidney (dialyzer), eliminating toxins and surplus fluid through the processes of diffusion and ultrafiltration. Persistent tiredness among patients undergoing hemodialysis typically stems from treatment-related complications such as minor blood loss, resulting anemia, and ongoing uremic toxin retention.

Research Objectives: To determine the effectiveness of SSBM on fatigue of HD patients.

Research Method: : this research is quantitative research. Using pre-experimental pre-test post-test research with one group design. The sampling technique obtained by total sampling with a total of 40 male respondents. Using the Wilcoxon test to determine differences before and after intervention..

Result: The results of this study using the Wilcoxon test showed a p-value <0.001.

Conclusion: There is a difference in fatigue scores before and after SSBM intervention

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1. Introduction

Indonesia is an archipelago with the longest Chronic renal failure (CKD) is a serious global health problem that requires long-term treatment. Chronic diseases are often cited as the leading cause of mortality and morbidity worldwide. One of the leading causes of death in the 21st century is chronic renal failure (CKD). Chronic kidney disease is one of the few non-communicable diseases and its prevalence is increasing every year (Kovesdy 2022). As reported by the World Health Organization (WHO), the incidence of chronic kidney failure (CKD) worldwide is >10% of the population. Globally, chronic kidney disease has increased from the 19th leading cause of death in the world to the 9th leading cause of death, with the number of deaths increasing by 95% between 2000 and 2021 (WHO, 2021). The prevalence of chronic kidney disease based on a doctor's diagnosis in the population aged ≥ 15 years in Indonesia accordingmto the Indonesian Ministry of Health, (2023) reached 0.18% or 638,178 people and the prevalence of CKD in West Java was recorded at 0.20% with a 95% confidence interval between 0.15% and 0.26%. This figure illustrates the proportion of the population diagnosed with chronic kidney disease in the province, which reached around 114,619 people while making West Java the 1st province with the highest number of people with CKD in Indonesia. (SKI 2023)

Chronic renal failure is referred to a long-term, worsening condition where kidney function slowly and permanently declines, making the kidneys unable to properly clean the blood. remove waste products and maintain fluid and electrolyte balance. Eventually, this leads to chronic renal failure (CKD) and requires hemodialysis renal replacement therapy or kidney transplantation to sustain life (Taha & Harismayanti 2023).

Hemodialysis is effective in replacing kidney function, regulating fluid, electrolyte, and acid-base balance, and removing metabolic wastes such as ureum and creatinine. Improper dialysis can also increase uremic toxins and inflammatory mediators as cellular toxins (Alshammari et al. 2024). In a study conducted by (Musniati, Muhsinin, and Puspitasari 2020) at NTB Regional Hospital regarding hemodialysis, it was found that around 60-97% of patients experienced fatigue. The symptom most often felt by patients while undergoing hemodialysis therapy is fatigue. The prevalence of fatigue in patients undergoing hemodialysis reaches 60-80% which is supported by research (Bossola et al. 2023).

Fatigue that occurs in hemodialysis patients is caused by side effects of hemodialysis, such as blood loss during hemodialysis sessions that cause uremia, anemia. Fatigue in hemodilysis patients requires proper treatment and intervention. If not treated immediately, the patient's quality of life will decrease, hampering socialization ability, sexual function, or causing decreased libido, impotence, depression, loss of time with family, decreased self- care ability, and even inability to perform routine activities (Melati et al., 2024).

Fatigue can be overcome in two ways, namely with pharmacological and non-pharmacological therapies. Pharmacological therapy to eliminate or reduce fatigue often includes prescribing drugs for anemia or depression. Meanwhile, non-pharmacological therapies include designing a daily activity schedule and helping individuals to do so. In this case, supporting patients to use integrative therapies such as massage, relaxation, yoga, acupressure, hypnosis, reflexology, aromatherapy, (Khamid and Rakhmawati 2022).

Fatigue is a condition in which a person experiences prolonged fatigue and cannot be overcome by ordinary means such as getting more rest or reducing stress. This symptom can significantly interfere with daily activities. Patients often describe fatigue as feeling weak, lacking energy, lethargic, or even wanting to sleep constantly.

Slow stroke back massage (SSBM) is a massage action by giving a slow and gentle massage on the back area that lasts 5-10 minutes, the therapeutic effect resulting from SSBM therapy is a sense of relaxation and comfort in muscles, nerves, and blood vessels. SSBM can have several positive effects on the body, including reducing fatigue and improving blood circulation. (Salati et al. 2024)

Slow stroke back massage is a massage technique that uses both hands simultaneously, starting from the sacrum to the neck, and is characterized by slow and long massage, sliding movements, and stroking movements. Throwback massage is a manipulative therapy that gently massages tissues, specifically aimed at producing physiological effects on the body's vascular, muscular, and nervous systems. (Sunaryanti, Ruron, and Ruron 2023)

Back muscle massage activates the limbic system in the hypothalamus, triggering the release of Corticotropin-Releasing Factor (CRF).This CRF stimulates the pituitary gland to secrete endorphins and pro opioid melanocortin (POMC) which can increase the productivity of encephalins by the adrenal medulla which affects mood changes. An increase in endorphins in the brain will reduce the secretion of cortisol, causing a feeling of physical and psychological relaxation. In addition, the feeling of relaxation will reduce fatigue. (Safitri and Wibowo 2022)

2. Method

This study employs a quantitative approach using a pre-experimental method with a one-group pretest-posttest design.. Respondents in this study take a pretest prior to receiving a slow-stroke back massage, and a post-test following the treatment. In this study, the population was male patients undergoing Hemodialysis at RSAU dr. M. Salamun. The total population in November 2024 was 40 patients. The sampling method in this study is probability sampling with total sampling technique, which is a sampling method in which the entire population that meets the inclusion criteria is used as a research sample.

This research subjects were also limited by inclusion criteria and exclusion criteria. criteria in this study are as follows. Inclusion criteria: 1. Chronic renal failure patients who are undergoing hemodialysis therapy 2. Male patients who experience fatigue 3. Able to communicate well 4. Willing to be a respondent. Exclusion criteria: 1. Experiencing paralysis of the upper extremities 2. Having an injury to the back 3. Patients who experience fatigue on a very severe scale.

The measuring instrument used in this research is Visual Analogue Scale- Fatigue (VAS-F). Data analysis in this study used univariate In this study, the univariate analysis was age, gender, occupation, education history, length of hemodialysis. Bivariate analysis was conducted to determine the success of the intervention using the Wilcoxon test.

3. Result

characteristics showed that the majority of respondents were between 50 and 83 years old (52.5%), In terms of education, the majority of respondents had a junior or senior high school education (62.5%), most respondents work in the private sector (57.5%). Length of hemodialysis, almost all respondents (97.5%) had been on hemodialysis for

more than one year, while only (2.5%) had been on hemodialysis for less than one year.

Table 1. Frequency Distribution of Hemodialysis Patient Characteristics at RSAU dr. M. Salamun

Respondent Characteristics	n	%
Age		
27-48 Years	19	47,5
50-83 Years	21	52,5
Education History		
Elementary School	7	17,5
Junior/Senior High School	25	62,5
Higher Education	8	20,0
Occupation		
Private	23	57,5
Retired	6	15,0
Honorer	1	2,5
Laborer	4	10,0
Civil Servant	1	2,5
Army	3	7,5
Self-Employed	2	5,0
Duration Of Hemodialysis		
>1 Year	39	97,5
<1 Year	1	2,5
Total	40	100,0

Based on Table 2 shows that 37 respondents (92.5%) experienced moderate fatigue before being given the slow stroke back massage intervention.

Table 2 Fatigue in Hemodialysis Patients Before Slow Stroke Back Massage

Fatigue Scale	**n**	**%**
No Fatigue	0	0
Feeling Mild Fatigue	0	0
Feeling Moderate Fatigue Feeling Severe	37	92,5
Fatigue	3	7,5
Total	40	100,0

Based on Table 3 shows that 33 respondents (82.5%) did not experience fatigue after being given a slow stroke back massage intervention.

Table 3 Fatigue in Hemodialysis Patients After Slow Stroke Back Massage

Fatigue Scale	**n**	**%**
No Fatigue	33	82,5
Feeling Mild Fatigue	5	12,5
Feeling Moderate Fatigue	2	5,0
Feeling Severe Fatigue	0	0
Total	40	100,0

4. Discussion

The Wilcoxon test showed a p-value of <0.001 (less than $\alpha = 0.05$), so the null hypothesis was rejected. This indicates a statistically significant reduction in fatigue levels after the SSBM intervention in hemodialysis patients with chronic kidney

disease at RSAU dr. M. Salamun Bandung, namely as many as 37 respondents (92.5%) experienced moderate fatigue before being given SSBM intervention and 33 respondents (82.5%) did not experience fatigue after being given SSBM intervention. The results of this study indicate that the slow stroke back massage (SSBM) intervention has a significant impact on reducing fatigue levels in hemodialysis patients. Before the intervention, the majority of patients experienced fatigue at the "Moderate" level, but after being given SSBM, almost most patients reported not experiencing fatigue at all. Only a small proportion of patients still reported mild or moderate levels of fatigue.

Research by (Ahmadidarrehsimaet al., 2022) showed that SSBM significantly reduced fatigue after the intervention in addition to SSBM can reduce fatigue problems and improve sleep disorders by providing SSBM for 5-10 minutes can improve fatigue scores within 3 days of intervention in hemodialysis patients. The findings of this study align with earlier research by (Nanda, Ayubbana, and Utami 2023) at Jendral Ahamd Yani Metro Hospital showing the results of the application of slow stroke back massage for 3 times effective in reducing fatigue in patients with chronic renal failure. This is also supported by research (Amalia & Prihati, 2021) which states that SSBM performed three times has been shown to reduce fatigue levels, where moderate fatigue becomes mild fatigue. This action is recommended for patients undergoing treatment.

P-value <0.001 indicates that SSBM intervention has a positive effect in reducing fatigue levels in hemodialysis patients. This supports the theory that SSBM can improve blood circulation, reduce physical and psychological stress, and increase patient comfort during hemodialysis procedures. This is supported by research (Amalia and Prihati 2021) which states that slow stroke back massage is able to relax several muscle groups in the back area which will stimulate the limbic system in the hypothalamus to secrete CRF. Increased endofrin in the brain will create a feeling of physical relaxation with increased endofrin, the secretion of cortisol will be suppressed so that patients will feel a relaxed sensation psychologically. The increase in endofrin after back massage will cause vasodilation of blood vessels which has implications for improving circulation where there is an improvement in the supply of oxygen and energy. In addition, the feeling of relaxation will reduce fatigue.

Table 4 Effect Of Slow Stroke Back Massage On Fatigue Of Hemodialysis Patients

		***Fatigue* After SSBM**					***p-value***
		No Fatigue	**Mild Fatigue**	**Moderate Fatigue**	**Severe Fatigue**	**Total**	
***Fatigue* Before SSBM**	**No Fatigue**	0 (0,0%)	0 (0,0%)	0 (0,0%)	0 (0,0%)	0 (0,0%)	<0,001
	Mild	0 (0,0%)	0 (0,0%)	0 (0,0%)	0 (0,0%)	0 (0,0%)	
	Moderate	33 (82,5%)	4 (10,0%)	0 (0,0%)	0 (0,0%)	37 (92,5%)	
	Severe	0 (0,0%)	1 (2,5%)	2 (5,0%)	0 (0,0%)	3 (7,5%)	
Total		33 (82,5%)	5 (12,5%)	2 (5,0%)	0 (0,0%)	40 (100,0%)	

The results of table 4 in the pre-test results there were 37 respondents (92.5%) had a moderate fatigue scale category. In the post-test results there were 33 respondents (83.3%) who did not experience fatigue. The Wilcoxon sign rank test in the table above shows that the p-value is <0.001. Where if the significant value (2 tailed) <0.05 indicates a difference between pretest and posttest. Based on statistics between pretest and postest, it can be concluded that the provision of nonpharmacological therapy

slow stroke back massage can reduce fatigue.

Kurniawan's research (2022) proves that SSBM in patients can reduce fatigue levels. Back massage techniques can provide overall relaxation and reduce fatigue because this therapy can improve blood circulation and reduce body tension (Amalia and Prihati, 2021). The decrease in fatigue levels and increase in energy levels in SSBM can be explained by the fact that dopamine increases energy levels and serotonin increases relaxation. Whereas the administration of back massage in patients experiencing poor sleep quality or sleep disorders, back massage is thought to produce therapeutic effects on the subject and to reduce cortisol, norepinephrine and epinephrine levels by stimulating the sympathetic nervous system, thus improving the patient's sleep quality based on the physical and psychological relaxation it provides (Unal & Akpinar, 2021)

5. Conclusion

Stroke Back Massage (SSBM) intervention significantly alleviates fatigue in hemodialysis patients at RSAU dr. M. Salamun Bandung in 2024. Fatigue, a common issue among hemodialysis patients, was carefully measured using valid and reliable instruments both before and after the SSBM therapy. Before the intervention, 37 respondents (92.5%) reported experiencing moderate fatigue. Before the intervention, 37 respondents (92.5%) reported experiencing moderate fatigue. after receiving the slow stroke back massage, 33 respondents (82.5%) no longer experienced fatigue. This significant reduction in fatigue levels indicates that SSBM could be a valuable therapeutic approach to help alleviate the discomfort and exhaustion faced by hemodialysis patients.

Moreover, the statistical analysis revealed a significant difference in the fatigue levels before and after the intervention, with a p-value of less than 0.001. This confirms that the observed change in fatigue levels was highly unlikely to be due to chance, further supporting the effectiveness of the slow stroke back massage in reducing fatigue in these patients.

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