

The effect of progressive muscle relaxation therapy on anxiety of hemodialysis patients in Pekanbaru, Indonesia

El efecto de la terapia de relajación muscular progresiva sobre la ansiedad de los pacientes de hemodiálisis en Pekanbaru, Indonesia

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SUMMARY

Introduction: Hemodialysis is a renal replacement therapy used by patients with chronic kidney failure. Psychological problems that hemodialysis patients often experience are anxiety. Anxiety among hemodialysis patients can be overcome by relaxation, one of which is progressive muscle relaxation. This study aimed to determine the effect of progressive muscle relaxation therapy on the anxiety level of hemodialysis patients.

Methods: This research is quantitative research with a pre-experimental design. The sampling technique uses total sampling with a number of respondents of 20 people. Collecting data used the Hamilton Anxiety

Rating Scale (HARS) questionnaire sheet and paired samples Students T-test.

Results: The results of the study before the intervention showed that respondents with mild anxiety were 11 people (55 %), moderate anxiety was 5 (25 %), heavy anxiety was 1 person (5 %), and 3 people were not anxious (15 %). After the intervention, the respondent's anxiety levels became less anxious 7 people (35 %), 12 people with mild anxiety (60 %), and 1 person with moderate anxiety (5 %). Based on the results, it was obtained that p-value = 0.0001 was smaller than alpha ($p < 0.05$).

Conclusion: There is a significant difference between the anxiety levels of hemodialysis patients before and after being given progressive muscle relaxation therapy. It is recommended that progressive muscle relaxation can be used to reduce anxiety in hemodialysis patients.

Keywords: Anxiety, hemodialysis, progressive muscle relaxation therapy.

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RESUMEN

Introducción: La hemodiálisis es una terapia de reemplazo renal utilizada por pacientes con insuficiencia renal crónica. Los problemas psicológicos que a menudo experimentan los pacientes de hemodiálisis son la ansiedad. La ansiedad entre los pacientes de hemodiálisis puede superarse mediante la relajación, una de las cuales es la relajación muscular progresiva. Este estudio tuvo como objetivo determinar el efecto de la terapia de relajación muscular progresiva en el nivel de ansiedad de los pacientes en hemodiálisis.

Métodos: *Esta investigación es una investigación cuantitativa con un diseño preexperimental. La técnica de muestreo utiliza un muestreo total con un número de encuestados de 20 personas. La recopilación de datos utilizó la hoja de cuestionario de la escala de calificación de ansiedad de Hamilton (HARS) y la prueba T de Student de muestras pareadas.*

Resultados: *Los resultados del estudio antes de la intervención mostraron que los encuestados con ansiedad leve fueron 11 personas (55 %), la ansiedad moderada fue 5 (25 %), la ansiedad severa fue 1 persona (5 %) y 3 personas no estaban ansiosas (15 %). Después de la intervención, los niveles de ansiedad del encuestado se volvieron menos ansiosos 7 personas (35 %), 12 personas con ansiedad leve (60 %) y 1 persona con ansiedad moderada (5 %). Con base en los resultados, se obtuvo que el valor $p = 0,0001$ fue menor que alfa ($p < 0,05$).*

Conclusión: *Existe una diferencia significativa entre los niveles de ansiedad de los pacientes en hemodiálisis antes y después de recibir terapia de relajación muscular progresiva. Se recomienda que la relajación muscular progresiva se pueda utilizar como una forma de reducir la ansiedad en pacientes en hemodiálisis.*

Palabras clave: *Ansiedad, hemodiálisis, terapia de relajación muscular progresiva.*

INTRODUCTION

Chronic kidney failure is a functional disorder in the kidneys, namely in regulating fluid and electrolyte balance and loss of power in the metabolic process (1). This condition can cause uremia or excess urea in the blood due to the accumulation of substances that cannot be removed from the body by the kidneys which leads to kidney tissue damage progressive and reversible (2-4). In the worst case, the patient could be in danger of his life if he did not regularly undergo hemodialysis (dialysis) or a kidney transplant to replace his kidney, which had been badly damaged (5). In Indonesia, a kidney disease that is quite often encountered, among others, is kidney failure. Defined as chronic kidney failure if a doctor has been diagnosed with chronic kidney failure (at least sick for three months in a row) (6-8).

According to the World Health Organization (WHO) and according to the Global Burden of Disease (GBD) study in 2015, 1.2 million people died from kidney failure, increasing 32 % since

2005. The prevalence of chronic kidney disease sufferers reaches 30 million people or 15 % of the adult population, and 96 % of the population is unaware that there has been mild renal impairment (9). The situation of chronic kidney disease in Indonesia reached 0.2 % (499,800) people in 2013 (6). In 2018, the proportion of people with chronic kidney disease who had or was undergoing hemodialysis increased to 19.3 % (10). According to Indonesia Renal Registry (IRR) in 2018, new patients in Riau in 2017 amounted to 40 people and increased in 2018 to 1097 people (11). The number of hemodialysis patients in 2018 was 132 142 (499 per million population) and 66,433 new patients (251 per million population). The number of hemodialysis patients at the Arifin Achmad Hospital, Riau Province, in 2020 amounted to 47 people (12).

Patients undergoing hemodialysis therapy think that to survive, they must depend on a dialysis machine which causes them to feel threatened, and it will not take long so that high feelings of anxiety and conflicts in the family will arise (13-16). This theory is supported by the research conducted in Manado that of 40 chronic kidney failure patients who underwent dialysis therapy, 100 % experienced anxiety (17). Anxiety that is not treated immediately will trigger the emergence of negative emotions that impact the quality of life of hemodialysis patients (18).

There are several ways to deal with anxiety in hemodialysis patients, one of which is progressive muscle relaxation therapy. Progressive Muscle Relaxation Therapy can reduce anxiety. This is supported by research by Alfiyanti, Setyawan, and Kusuma (2014) conducted at a hospital from 13 respondents who experienced mild anxiety, it decreased to 10 respondents, then 4 respondents with moderate anxiety and 1 respondent with severe anxiety after being given the intervention no longer experienced anxiety (19). However, based on a preliminary survey in January 2021 showed that 70 % of patients experienced anxiety. Meanwhile, the results of interviews with room nurses said that almost all patients experienced anxiety. Therefore, this study aimed to determine the effect of progressive muscle relaxation therapy on anxiety levels in hemodialysis patients at the hospital.

METHODS

This research is a quantitative study with a pre-experimental design in the form of a one-group pre-post-test design without a control group. This design has been observed through a pretest first, then given treatment or intervention, and then a posttest to find out the changes that occur before and after being given treatment or intervention (20). The intervention that will be given in this study is progressive muscle relaxation therapy which consists of 15 movements and is given to hemodialysis patients. Sampling in this study used a total sampling amount of 20 patients. Data collection using the Hamilton Anxiety Rating Scale (HARS) questionnaire sheet consists of two types: demographic questions consisting of initials, gender, age, and education and an anxiety level questionnaire consisting of 13 questions about anxiety symptoms and 1 category of behaviour during interviews.

Analysis of the data in this study using the Statistical test paired samples t-test. This research has conducted an ethical test at the Sekolah Tinggi Ilmu Kesehatan Hang Tuah, Pekanbaru with an ethical test number: 240/KEPK/STIKes-HTP/V/2021.

RESULTS

Table 1 showed that most of the respondents were female (55%), early elderly category (55%), and graduated from high school education (40%)

Based on Table 2, it can be seen that the anxiety level of respondents before being given progressive muscle relaxation therapy, most of the respondents experienced mild anxiety as many 11 people (55%). However, after being given progressive muscle relaxation therapy, there was a decrease in the respondent's anxiety levels from heavy anxiety from one person (5%) to 0 people (0%), moderate anxiety from 5 people (25%) to 1 person (5%), mild anxiety level increased from 11 people (55%) to 12 people (60%). The non-anxiety category increased from 3 people (15%) to 7 people (35%).

Table 1
Characteristics of Respondents

Characteristics	Frequency	Percent (%)
Gender		
Male	9	45
Female	11	55
Age (Years)		
Early Adulthood (26-35)	1	5
Late Adulthood (36-45)	3	15
Early Elderly (46-55)	11	55
Late Elderly (56-65)	3	15
Seniors (>65)	2	10
Level of Education		
Elementary School	3	15
Junior High School	4	20
Senior High School	8	40
Bachelor's degree	4	20
Master's degree	1	5
Total	20	100

Table 2

Distribution of Anxiety Levels in Hemodialysis Patients Before and After Progressive Muscle Relaxation Therapy

Anxiety Level	Pretest		Post-Test	
	n	%	n	%
No Anxiety	3	15	7	35
Mild Anxiety	11	55	12	60
Moderate Anxiety	5	25	1	5
Heavy Anxiety	1	5	0	0
Very anxious	0	0	0	0
Total	20	100	20	100

Based on Table 3 on the statistical test using paired samples t-test shows the results of the value of p-value = 0.0001. There is an effect of progressive muscle relaxation technique on anxiety-level hemodialysis patients in hospitals.

Table 3

Analysis of the Effect of Progressive Muscle Relaxation Therapy on Anxiety Levels in Patients Undergoing Hemodialysis

Anxiety Levels	Mean	SD	p-value
Pretest	16.45	6.992	0.0001
Post-test	12.20	5.297	

DISCUSSION

The results show that most respondents are in the early elderly category (46-55). This is in line with a previous study that kidney function will begin to decline when a person is over 40 years old. If he reaches the age of 90, the remaining kidney function may only be 50 % (21). Changes in kidney function along with the aging process increase the susceptibility of the elderly to impaired function and kidney failure. Changes in renal blood flow, glomerular filtration, and kidney hygiene in kidney failure increase the risk of treatment-related changes. In the elderly, many kidney hemostatic functions are reduced, so it is a predisposition to cause kidney failure (22). This study is also in line with research that the age group 45 years is the most affected by chronic kidney failure, as much as 73.96 %, and the age group 44, as much as 26.04 % (23).

Most education levels of hemodialysis patients are in senior high school. This is in line with research that the highest level of education is at the high school level (24). This is influenced because everyone needs the knowledge to improve their quality of life. For this reason, to increase their knowledge, higher education is needed. Education is not only formal but can be obtained informally (25). According to Mubarak et al. (2015), someone with knowledge and intellectual abilities will be able to increase his ability and self-confidence in dealing with stress. The higher the education a person has, the easier and more able to deal with existing stress (26). Education and health are two related things, namely, education is a means used by individuals to understand the importance of health and how to maintain a healthy lifestyle.

Researchers proved that after being given a progressive muscle relaxation technique, there was a change in the level of anxiety in hemodialysis patients. The progressive muscle relaxation techniques are relaxed that can normalize the functions of the body's organs. The feeling of relaxation that is felt will be transmitted to the hypothalamus to stimulate the pituitary gland to increase endorphins, enkephalins, and serotonin, the increase in these hormones occurs due to the influence of Corticotrophic Releasing Factor (CRF) released by the hypothalamus, which will

stimulate the pituitary gland (27). Increasing the production of endorphins, enkephalins, and serotonin will cause feelings of calm and relaxation (28). This hormone can function as a natural sedative produced in the brain and spinal cord. This follows the theory that progressive muscle relaxation techniques can reduce anxiety levels in a person because progressive muscle relaxation techniques have a relaxing effect on the body (27). The use of progressive muscle relaxation techniques can be applied because it is easy to do. This relaxation only involves the muscle system without the help of other tools. Progressive muscle relaxation techniques can be done in a resting state, namely when sitting relaxed, or watching TV, before going to bed, so it is easy to do anytime.

According to the theory by Edmund Jacobson, progressive muscle relaxation is done by focusing on a muscle activity by identifying the muscle tension by performing several relaxation actions to create a relaxed feeling. In other words, this relaxation technique is a technique that combines breathing exercises with muscle tension and muscle relaxation (29). The results of this study align with research by Saputri et al., in 2016 about the effect of progressive muscle relaxation on the anxiety levels of mothers in the third trimester at the public health center after being given the intervention of progressive muscle relaxation (30). The progressive muscle relaxation technique focuses on muscle activity by identifying tense muscles and then reducing tension by doing relaxation techniques to get a relaxed feeling so that after relaxing, these muscles can reduce tension muscles, reduce headaches, and insomnia and can be done to reduce anxiety levels (31).

CONCLUSION

In conclusion, it was found that there was a significant difference between the level of anxiety before and after being given progressive muscle relaxation techniques to the anxiety level of hemodialysis patients in the hospital. Therefore, progressive muscle relaxation therapy can be used to reduce patient anxiety, especially in the hemodialysis room.

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