The Effect of Stress Management Therapy on Changes in Stress Levels in the Elderly in Aceh Besar, Indonesia

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Abstract. Retirement is commonly considered a difficult time since it is a significant life adjustment that elderly people must make in their later years. To effectively handle stress in the senior population, it is crucial to develop effective techniques. Applying progressive muscle relaxation therapy to the elderly is one such method. This study aimed to identify changes in stress levels before and after progressive muscle relaxation therapy in the elderly. This type of research is quasi-experimental with a cross-sectional study design. The sampling technique in this research was a sampling capacity of 100 elderly people. The sample was divided into two groups: the intervention group, which consisted of 50 elderly people, and the control group, which consisted of 50 people. The measuring tool used in this research is the standard Depression Anxiety Stress Scale (DASS 42) questionnaire data collection via Google Forms. Data analysis used the difference between two means t-test analysis. The results showed a significant difference in stress levels before and after participating in the therapy program in the experimental group (t=-4.173, p<0.05). This indicates that progressive muscle therapy in the elderly can reduce stress levels.

Keywords: Management; Stress; Elderly.

INTRODUCTION

The inevitable increase in the elderly population due to declining birth rates and growth in life expectancy is characteristic of the demographic transition period [1]. The impact of this increase has improved the health and welfare of the elderly, one of the priorities that must be considered [2]. Globally, the number and proportion of the population aged 60 years and over is 1 billion. This number will increase to 1.4 billion in 2030 and 2.1 billion in 2050 [3]. Meanwhile, Indonesia has the eighth-largest elderly population globally and the fourth-largest among Asian countries. In 2035, the elderly population will increase by 15.77% or 48.2 million people [4]. Meanwhile, the number of elderly people in Aceh Besar Regency is 13,979, and the number of elderly people who get elderly health screening according to the standard is 63.2% or 8,838 people [5].

As we age, physical and psychosocial changes will impact the decline in physiological functions, causing the elderly to have limitations in activities compared to when they were young. Challenges that may exacerbate stress levels, such as increased loneliness, chronic illness, grieving, limb weakness, lifestyle changes, a tendency to think negatively, and feelings of not being needed and/or transitioning out of the workforce, put older adults at high risk of stress. Globally, 15% of the elderly population suffers from stress-related mental disorders, which is one of the major mental health problems and affects a significant proportion (10-55%) of the elderly population. The prevalence of stress and anxiety among the elderly is gradually increasing and is expected to double in the next decade [6]. Based on research conducted by [7] shows that the elderly are prone to stress. It was found that about two-thirds (63%) of respondents reported stress related to their illnesses, such as hypertension (52%), musculoskeletal disorders (29%), and diabetes mellitus.

About two-thirds (69%) of the elderly live with family members. Line with research conducted by [3] also showed that as many as 59% of elder-

ly people experienced stress and had a statistically significant relationship between disease and the level of stress incidence.

Stress is one factor affecting the physical and mental health of the elderly. Elderly people who continue to experience stress and are not treated immediately will have a high risk of various negative consequences related to stress. Increased stress in older people has been linked to depression, cognitive impairment, and decreased overall health status [6]. In addition, long-term stress levels will also hurt the health and well-being of the elderly and tend to cause the elderly to attempt suicidal behaviour. In addition, elderly people who experience stress tend to have a low level of quality of life. The statement is by the Holmes and Rahe Stress Scale, where the death of a spouse, divorce, marital separation, death of a close family member, and personal injury or illness are ranked as the highest causes of stress. One intervention that can be given to the elderly to manage stress is stress management [8].

Stress management can train the elderly to control emotions, thoughts, and sensations that arise in adapting to change. Several studies have shown the positive impact of stress management training is significant for the mental health of the elderly, including research conducted by [2] on the effectiveness of stress management training programs in reducing stress anxiety, showing that stress management training can be used to manage stress and health-related problems better. The statement is also supported by [9], who examined stress management training to reduce stress and depressive symptoms, showing that this method can play an essential role in reducing stress and depression and improving social adaptability among the elderly.

One form of stress management that can be applied to the elderly with chronic diseases is progressive muscle relaxation therapy, which is physical stimulation and mental calmness, emphasising stretching and systematic muscle release (contraction-release). This technique can be used by the elderly without the help of a therapist, and they can do it to reduce tension and anxiety experienced daily at home. The benefits of progressive muscle relaxation are overcoming various problems, including stress, anxiety, and insomnia, building positive emotions, and controlling negative emotions. These problems can become a series of forms of psychological disorders if not overcome [10]. This is to research conducted by [11], which states that most of the eight respondents (50%) were in the moderate stress category before progressive muscle relaxation therapy was performed. After progressive muscle relaxation therapy, most were in the mild stress level category, namely 13 respondents (81.2%). Thus, it is known that progressive muscle relaxation can affect stress.

METHODOLOGY

Study Design. This study is a quasi-experimental study with a two-group pre-post-test design. The experimental group and control group were obtained in the same region. The purpose of this study was to examine the effects of stress management on older adults with chronic illnesses. Therefore, an initial stress assessment was conducted before and after the researcher provided the intervention, and then the scores were compared to determine whether there was a significant change. The target population for this study was the elderly in Aceh Besar District.

Population and Sample. Data collection techniques were carried out with guided interviews in Aceh Besar Regency with a total sample of 100 divided into control groups (n = 50) and intervention groups (n=50) using purposive sampling techniques with criteria 1) age 60 years and over, 2) have chronic diseases, 3) live in Aceh Besar, 4) can read and write, 5) do not experience severe cognitive impairment, and 6) can communicate well.

Instrument. The instrument of this study was a two-part questionnaire: Part A is in the form of demographic data of respondents consisting of name, age, gender, religion, latest education, marital status, income, living together, history of illness, length of illness and who cares for when sick. Part B, to measure stress, the measuring instrument used in this study is the standardised Depression Anxiety Stress Scale (DASS 21) questionnaire, which is an internationally accepted measuring instrument and has been translated by Damanik (Damanik, 2011). Four answer options are provided for each statement: 0: Does not suit me at all, or never: 1) Corresponds with me to some degree or sometimes; 2) Corresponds with me to a degree that can be considered, or quite often; 3) It suits me very much, or very often. In addition, this questionnaire also has five levels of stress categories, namely stand-

ard (0-7), mild (8-9), moderate (10-12), severe (13-16) and very severe (17+) stress.

Data Analysis. Data analysis used frequency distribution for demographic data and stress levels. Furthermore, data analysis compared the difference between pretest and post-test scores of dietary behaviour using a Paired t-test (n=55), a comparison of differences between pretest and post-test scores of dietary behaviour using an Independent t-test (n=55) and a comparison of post-test scores of experimental and control groups of pretest scores using ANCOVA (n=55).

RESULTS AND DISCUSSION

Tables 1 and 2 show the health-related characteristics of the intervention and control groups. Samples in both groups contained some of the highest disease sufferers, including High Blood Pressure, with a total of 23 people (46.0%) in the intervention group and the control group, a total of 17 people (34.0%); Diabetes Mellitus disease with a total of 11 people (22.0%) in the intervention group and the control group a total of 7 people (14.0%). Cholesterol disease was in the intervention group with three people (6.0%); in the control group, there were two people (4.0%).

Table 1 – Demographic Characteristics

Characteristics	Intervention Group (n = 50)		Control Group (n = 50)	
	n	%	n	%
Age (years)	M=65.40 SD =6.893 Min-Max=57-83		M=30.72 SD =9.947 Min–Max=29-80	
Marriage Status				
Unmarried	0	0.0	3	6.0
Marry	36	72.0	30	60.0
Death Divorce	14	28.0	16	32.0
Divorce Life	0	0.0	1	2.0
Gender				
Male	13	26.0	2	4.0
Female	37	74.0	48	96.0
Last Education				
Higher Education	7	14.0	5	10.0
SD	17	34.0	18	36.0
SMA	11	22.0	12	24.0
SMP	9	18.0	7	14.0
Not in School	6	12.0	8	16.0
Source of Income				
Children	8	16.0	2	4.0
Teacher	1	2.0	1	2.0
Retired civil servants/military	6	12.0	2	4.0
Farmers	1	2.0	2	4.0
Not Working	27	54.0	28	56.0
Self-employed	6	12.0	4	8.0
Others	1	2.0	11	22.0

Table 2 – Health-related characteristics of experimental and control groups (n=100)

Characteristics	Intervention Group (n=50)		Control Group (n=50)	
	N	%	n	%
Disease History				
Winter allergy	1	2.0	1	2.0
Uric acid	2	4.0	2	4.0
Diabetes Mellitus	11	22.0	7	14.0
hearing disorders	2	4.0	3	6.0
Gastritis	1	2.0	2	4.0
Cholestrol	3	6.0	2	4.0
Gastric	2	4.0	2	4.0
Heart Disease	1	2.0	1	2.0
Prostate	1	2.0	1	2.0
Arthritis	1	2.0	3	6.0
Blood Pressure High	23	46.0	17	34.0
Others	0	0.0	4	8.0
None	2	4.0	5	10.0
Desperate				
Yes	6	88.0	21	42.0
No	44	12.0	29	58.0
Pain Scale				
1	3	6.0	3	6.0
2	13	26.0	13	26.0
3	33	66.0	33	66.0
4	1	2.0	1	2.0
Duration of suffering				
<1 year	6	12.0	15	30.0
2-5 years	36	72.0	29	58.0
6-10 years	8	16.0	4	8.0
> 20 years	0	0.0	2	4.0

Table 3 – Comparison of Pretest and Post-test Differences using paired t-test (n=50)

	Pretest		Post-test		t	p
	mean	SD	mean	SD		
Control group (n=50)	15.32	6.92	14.32	6.4	0.747	0.459
Intervention group (n=50)	25.1	15.06	10.98	5.82	6.33	0.000

Tables 3 and 4 show that the pretest total mean score of the intervention group was significantly higher than that of the experimental group (t = 4.173, df = 86, p < 0.05). In the post-test, the control group was significantly higher than the intervention group (t = 2.73, df =86, p < 0.05). However, this finding should be interpreted with caution due to the difference between the groups at pretest.

Table 4 – Comparison of Pretest and Post-test Score differences using independent t-test (n = 50)

Stress Management	Intervention Group (n=50)		Control Group (n=50)		t	p
	Mean	SD	Mean	SD		
Average Pretest	25.1	15.058	15.32	6.924	-4.173	0.000
Posttest Average	10.98	5.822	14.32	6.4	2.73	0.007

Table 5 – Comparison of intervention and control group post-test scores after controlling for pretest scores using ANCOVA (n = 100)

Source of Variance	Sum of Squares	Df	Mean of Square	F	P	∏2
Group	85.409	1	85.409	2.241	0.138	0.23
Average total pretest score	0.661	1	0.661	0.017	0.896	0
Error	3658.368	96	38.108			
Total	19947.000	100				

This finding is consistent with several previous studies on the effectiveness of stress management with progressive muscle relaxation and deep breathing to improve psychological and physiological relaxation conditions. The results showed that after training in progressive muscle relaxation and deep breathing, there was a statistically significant increase in the intervention group compared to the control group [12]. Research conducted by [10] shows substantial differences between the control and intervention groups after progressive muscle relaxation therapy and deep breathing treatment. This is because progressive muscle relaxation therapy, combined with deep breathing, can control muscle tension and physical and psychological anxiety symptoms and encourage relaxation of major muscle groups, such as the face, arms, legs, neck, and back. In addition, relaxation also helps to reduce stress in the body and restore homeostasis.

Based on research conducted by [13] shows that stress relaxation techniques can be effective in helping individuals cope with stress and improve well-being. This statement is by the research results showing that progressive muscle relaxation can improve adaptation to old age and the quality of life of the elderly, as evidenced by the total average score of the intervention group significantly increased (P < 0.001). Based on the results of various literature studies, studies show that before progressive muscle relaxation therapy was performed, seven respondents (43%) were in the mild category, and eight respondents (50%) were in the moderate stress category. One respondent (6.2%) was in the severe stress category. However, after progressive muscle relaxation therapy was performed, 13 respondents (81.2%) entered the category of mild stress levels, and three respondents (18.8%) entered the category of moderate stress. Showing the results of the Wilcoxon Match Pairs Test test, which has a value of 0.008 (0.008 <0.05), there is a significant influence between progressive muscle relaxation therapy and stress levels.

The study is also fully supported by the results of outside research conducted by [14], which also showed a significant difference (P < 0.001) in the average stress and depression scores before the intervention (37.26±7.70) and after the intervention (8.01±5.22) in the intervention group. This finding confirmed the positive effect of progressive muscle relaxation therapy in reducing stress and depression in the elderly. The findings are consistent with the results [15, 16] conducted in Iran. Progressive muscle relaxation is one of the exercises that provides a relaxing effect because it involves several muscles, such as the muscles of the hands, forearms, and biceps, as well as the muscles of the face, shoulders, and head, the muscles of the chest and abdomen and the muscles of the feet, calves, thighs and buttocks [17]. Deep breathing also affects sleep quality because it is part of implementing progressive muscle relaxation. Deep breathing in progressive muscle relaxation is by taking a deep breath through the nose until the stomach feels expanded and expelled through the mouth so the stomach goes inside. Requires high concentration to do deep

breathing so that deep breathing can affect the brain to eliminate thoughts that make feelings of anxiety and depression. Deep breathing can also signal to the brain that the body is in a calm condition, which can slow down heart rate and nerve activity to have a relaxing effect. A person in a relaxed and peaceful state will have better sleep quality [11].

CONCLUSIONS

Based on the discussion of the research results on 100 respondents previously described regarding the effectiveness of stress management in the elderly in the intervention group and control group, it is concluded that there is a significant relationship in the intervention group compared to the control group.

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