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The Effectiveness of Active Range of Motion Exercises on the Pain Scale of Gouty Arthritis in the Elderly in the Working Area of the Gedong Tataan Health Center

Andhika Rifki Perdana[1], Sugiarto[1], Hardono[1], Sutrisno[1]
[1]*Universitas Aisyah Pringsewu, Lampung, Indonesia*

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Corresponding Author :
Andhika Rifki Perdana
E-mail : adjaandhika@gmail.com

ABSTRACT

Background & Objective: Gouty arthritis is a condition that occurs when uric acid levels in the blood exceed normal limits, characterized by prolonged pain and impaired daily activities. Based on data at the Gedong Tataan Health Center, there were 26 elderly people with Gout Arthritis who experienced joint pain. Pain in patients with Gout Arthritis can be treated through pharmacological therapy, such as the administration of drugs, and non-pharmacological therapy, such as active range of motion exercises. This study aims to determine the effectiveness of active Range Of Motion exercises on the Gout Arthritis pain scale in the elderly in the Gedong Tataan Health Center Working Area. **Method:** Quantitative research method with quasy experiment type and pretest posttest control design approach. The population of this study was 26 elderly people while the sample used by the total sampling technique was divided into 2 groups, consisting of 13 intervention groups, and 13 control groups. The research instrument used SOP Range Of Motion and pain scale measurements, the data analysis test used in this study used Mann-Whitney. **Result:** The results of the study obtained a p-value of 0.004, meaning that there is an effectiveness of active Range Of Motion exercises on the Gout Arthritis pain scale in the elderly in the Gedong Tataan Health Center Working Area. **Conclusion:** It is hoped that this intervention can be applied at the health center in overcoming pain complaints in the elderly suffering from Gout Arthritis.

Introduction

Gouty arthritis is a disease caused by an excessive build-up of uric acid in the body, which can occur due to increased production of purines, decreased removal through the kidneys, or increased intake of foods that contain a lot of purines. Gouty arthritis occurs when uric acid levels are high. Gouty arthritis has been known to humans for 2000 years and is one of the oldest diseases (Anisa, 2020).

Gout Arthritis is a condition in which uric acid levels in the blood exceed normal limits, which in women are around 2.4-6.0 mg/dL and in men around 3.4-7.0 mg/dL, caused by hyperuricemia. The disease affects the joints suddenly, causing burning, pain and swelling. This joint disease is often found in the elderly (Aurora et al., 2021).

The elderly are an age group that has entered the final stage of their life phase. The elderly can experience health problems, one of which is problems in the foot joints. Gouty arthritis is a disease that commonly affects the elderly (James and Elston D, 2020).

According to WHO data, the incidence of Gout Arthritis has increased by 4% every year. In the United States, the incidence of Gout Arthritis is higher in men than in women. Gouty arthritis data can increase by about 10% in men and about 6% in women. The incidence rate of gouty arthritis is approximately 2.68 per 1000 people. Data throughout the world of Gout Arthritis disease has increased due to eating habits that contain a lot of purines, the wrong diet, lack of exercise, obesity, this has resulted in a high prevalence of Gout Arthritis (Arlinda, 2021).

According to the 2018 Riskesdas, the prevalence of joint disease due to Gout Arthritis in Indonesia reached 17.71%, while in Lampung Province it was 7.61%. In the same year, the overall prevalence of Gout Arthritis in Indonesia was 11.9%, with the highest rate in Aceh Province at 18.3%, followed by West Java at 17.5%, and Papua at 15.4%. In Gorontalo, the prevalence of joint disease ranks 16th out of 38 provinces. Based on diagnosis, the prevalence in the 45-54 age group is 11.1%, 55-64 years old is 55.5%, and 65-74 years old is 18.6%. Overall, women dominated the number of sufferers with 8.5% compared to men who were only 6.1%. The data shows that Gout Arthritis is more prevalent in the age group of 45 to 74 years, especially in the pre-elderly and elderly groups which show a higher prevalence rate. In addition, in Pesawaran Regency in 2023, there were 4,802 people who experienced Gout Arthritis (Dungga, 2022).

Joint pain in Rheumatoid Arthritis makes sufferers often afraid to move, thus disrupting their daily activities and can reduce their productivity. Decreased musculoskeletal ability due to joint pain can also reduce physical activity and exercise, which will affect the elderly in carrying out activities of daily living. Respondents who experience high pain will depend on other family members, thus disrupting their daily life activities. Meanwhile, respondents who experience low pain will be more independent and can carry out their daily life activities without the help of others (Hardywinoto, 2019).

The impact of gout if not treated properly is the occurrence of disability, where the elderly will experience self-limitation in carrying out an activity. If this disease has started to attack, the sufferer will experience very painful pain, swelling, and disability in the joints of the hands and feet. Based on other studies, the impacts that arise and cause complications in gout (Gout Arthritis) include kidney disease, coronary heart disease, hypertension, and even death (Jauhar., M., 2022).

The management of joint pain can begin with a specific diagnosis to determine the type of pain, which is very helpful in choosing analgesics or other drug therapy. Pain management can be done pharmacologically (using drugs) and non-pharmacologically. Although physical exercise usually has a very minimal effect, active ROM exercises in patients with Gout Arthritis can reduce pain and increase flexibility according to individual movement limits (Pratiwi, 2020).

Active ROM exercises are beneficial for increasing muscle mass and tone and maintaining the ability to move joints normally. The type, intensity of exercise, and age of a person will affect the level of muscle strength. The more often a person does muscle training, the more muscle strength will increase so that the risk of falling can be reduced (Nindawi et al., 2021).

Objective

This study aims to determine the effectiveness of active Range Of Motion exercises on the Gout Arthritis pain scale in the elderly in the Gedong Tataan Health Center Working Area.

Method

The type of research used is quantitative with a quasy experimental research design, with a pretest posttest control group design approach. This study contained 2 groups, namely one treatment group and one control group. The independent variable in this study is active Range Of Motion while the dependent variable is Gout Arthritis pain. The population in this study were 26 respondents and used a sample of 26 respondents. The subject of this research is the elderly. The object in this study is active Range Of Motion in patients with Gout Arthritis. The analysis that will be used in this study is univariate and bivariate tests. This research was conducted at the Gedong Tataan Health Center Work Area on August 23 - September 21, 2024.

Results

Univariate analysis

Gouit arthritis pain scores before active ROM in the intervention and control groups

TABLE 1. Gout Arthritis Pain Value Before Active ROM is Given in the Intervention and Control Groups

Before	N	Median	Min	Max
Intervention Group	13	6,00	5	7
Control Group	13	7,00	5	8

Based on table 1, the results of the study were obtained before giving Active ROM in the Intervention group, namely the Median Value of Gout Arthritis pain paid by the intervention group was 6.00, a minimum value of 5 and a maximum of 7. While in the control group the median value of pain is 7.00, a minimum value of 5 and a maximum of 8.

Gout Arthritis Pain Value After Active ROM in the Intervention and Control Groups

TABLE 2. Gout Arthritis Pain Value After Active ROM in the Intervention and Control Groups

After	N	Median	Min	Max
Intervention Group	13	2,00	1	4
Control Group	13	4,00	2	5

Based on table 2, the results of the study after being given active ROM in the intervention group obtained a median value of Gout Arthritis pain of 2.00, a minimum value of 1 and a maximum of 4. While in the control group, the median value of Gout Arthritis pain with a value of 4.00, a minimum value of 2 and a maximum of 5.

Data Normality Test

TABLE 3

Variabel	Shapiro-Wilk		
	Statistic	Df	Sig.
Pre Control	0.851	13	0.029
Post Control	0.794	13	0.006
Pre Intervention	0.819	13	0.012
Post Intervention	0.846	13	0.025

The normality test is carried out to determine whether the sample under study is normally distributed or not. In this study the sample was less than 50 respondents so the normality test used was the shapiro-wilk test. The normality test criteria are normally distributed data if the significant level> α (0.05). Based on the table above, the results of the statistical test obtained by the normality test of the intervention and control groups obtained a significant value in the Shapiro wilk table <0.05, which means that the data is not normally distributed.

Bivariate Analysis

Effectiveness of Active Range Of Motion Exercise on Reducing Gout Arthritis Pain in the Elderly in the Gedong Tataan Health Center Work Area in 2024

TABLE 4. Effectiveness of Active Range Of Motion Exercise on Reducing Gout Arthritis Pain in the Elderly in the Gedong Tataan Health Center Work Area in 2024

Gout Arthritis Pain	Median (Minimum - Maximum)	P Value	*Z Score*
Intervention Group (Active ROM)	2,00 (1-4)	0,004	-2.845
Control Group (No Active ROM)	4,00 (2-5)		

Based on table 4, the research results obtained are the median value of the decrease in Gout Arthritis pain in the intervention group of 2.00 and in the control

group of 4.00. The results of the Mann-Whitney non-parametric test obtained a p-value of 0.004 means that there is an effectiveness of active Range Of Motion training on reducing Gout Arthritis pain in the elderly in the Gedong Tataan Health Center Working Area.

Conclusion

Based on the results of the study it can be concluded that: There are the results of the study before giving Active ROM in the intervention group, namely the median value of Gout Arthritis pain in the intervention group is 6.00, a minimum value of 5 and a maximum of 7. While in the control group the median pain value is 7.00, a minimum value of 5 and a maximum of 8. Regarding the results of the study after being given active ROM in the intervention group, the median value of Gout Arthritis pain was obtained with an average value of 2.00, a minimum value of 1 and a maximum of 4. While in the control group, the median value of Gout Arthritis pain with a value of 4.00, a minimum value of 2 and a maximum of 5. Non-parametric Mann-Whitney results obtained a p-value of 0.004 ⩽ 0.05, which means that there is an effectiveness of active Range Of Motion training on reducing Gout Arthritis pain in the elderly in the Gedong Tataan Health Center Working Area in 2024.

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