

COMPARISON OF STRENGTHENING EXERCISE AND RANGE OF MOTION (ROM) TO DECREASE THE INTENSITY OF PAIN IN THE ELDERLY WITH OSTEOARTHRITIS IN SIMPANG TIGA PEKABARU HEALTH CENTER.

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ABSTRACT

Osteoarthritis is a degenerative disease, which is experienced by elderly that characterized by pain in the lower extremities and its prevalence increases by getting older. Non-pharmacological management is a very important component to solved pain with Strengthening Exercise and Range of Motion (ROM) exercises. This study aims to determine the comparison of Strengthening Exercise and Range of Motion (ROM) to decrease the intensity of pain in the elderly with Osteoarthritis in Simpang Tiga Pekanbaru Health Center. This type of quantitative research, quasy experiment design with pre-test and post-test design. The number of respondents was 28 people, Strengthening Exercise 14 people and Range of Mation (ROM) 14 people. This research used Purposive sampling technique. Data analysis by dependent T-test and Independent T-test. The results showed that there was a significant comparison between Strengthening Exercise and Range of Mation (ROM) to decrease pain intensity with $p < 0.05$ ($p = 0.000$). In conclusion Strengthening Exercise is more effective in reducing pain intensity in the elderly with osteoarthritis. Suggestion Strengthening Exercise is more recommended as a treatment for mild and moderate pain intensity in osteoarthritis than in Range of Mation (ROM)

Keyword : *Strengthening Exercise, Range Of Mation, Osteoarthritis, elderly*

1.INTRODUCTION

Osteoarthritis is the most common joint disease and its prevalence increases with age. By 2030, the prevalence of osteoarthritis in the United States is estimated to increase to 67 million cases (Hacken, 2014). In Thailand, the prevalence of osteoarthritis in 2010 was 19.8% (WHO, 2014). According to WHO in 2007, the population experiencing osteoarthritis in Indonesia was 8.1% of

the total population. As many as 29% of them conducted a doctor's examination and 71% took over-the-counter pain relievers (Lestari, 2014).

Pain is a symptom most often found in osteoarthritis (Helmi, 2014). Osteoarthritis refers to a clinical syndrome of joint pain accompanied by varying degrees of functional limitations and decreased quality of life and is one of the leading causes of pain and disability worldwide (National Clinical Guideline Center (UK), 2014). Several actions can be recommended for patients to do at home, one of which is non-pharmacological therapy which is a very important component in overcoming pain, namely Strengthening Exercise and ROM (Warsito, 2012).

Gamit (2014) states that Strengthening Exercise is a type of exercise that is useful for improving balance, improving posture as well as providing stability to the arms and legs to develop movement coordination skills which are the basis of balance skills. ROM is a range of motion exercise in the joints, the effect of ROM training on joint flexibility of the elderly. ROM exercises can be used as a non-pharmacological therapy in reducing knee pain in elderly people with osteoarthritis (Bell, 2014).

According to Nurus (2013) about the effect of ROM training on increasing muscle strength of the elderly at the UPT elderly social services (Pasuruan) kec. Most of the respondents (58%) of respondents experienced an increase in muscle strength, almost half (26%) of respondents did not experience an increase in muscle strength, and a small proportion (16%) experienced a decrease in muscle strength after being given ROM exercises. According to Irma (2017), about the effect of ROM on muscle strength in elderly bedrest at PSTW Budhi Mulia 3 Margaguna, South Jakarta, namely an increase in muscle strength after being given ROM exercises.

The results of a preliminary study on February 4, 2019 at the Simpang Tiga Health Center, obtained data on the number of respondents from osteoarthritis from October to December 2018 totaling 311 patients, the results of interviews conducted by researchers with 10 clients with osteoarthritis, 4 elderly people said they often felt pain in the leg that made them unable to do activities, 3 elderly said they had never tried to do ROM and Strengthening Exercise movements to reduce pain and usually only took medication to reduce pain and 3 elderly said they did not know what ROM and Strengthening Exercise were. Respondents interview results said that if the pain they felt was too great they only took it to the Puskesmas and took the medicine that had

been given. The formulation of the problem in this study is which one is better between Strengthening Exercise and ROM to reduce pain intensity in the elderly with osteoarthritis at the Simpang Tiga Puskesmas, Pekanbaru. By looking at the phenomenon and the importance of how to reduce pain intensity in the elderly with osteoarthritis, the researchers were interested in conducting a study entitled Comparison of Strengthening Exercise and ROM on reducing joint pain intensity in the elderly with osteoarthritis at the Simpang Tiga Puskesmas, Pekanbaru.

2.METHOD

The type of research used in this research is quantitative with a quasy experimental design with a pre-test and post-test design, namely by making preliminary observations before being given intervention after which intervention is given then a post test is carried out. The sampling technique was purposive sampling with inclusion criteria for the elderly with a diagnosis of osteoarthritis aged 45-59 years. The sample in this study was 28 elderly with osteoarthritis at the Simpang Tiga Public Health Center Pekanbaru, which were divided into two groups of strengthening exercise, 14 people and the ROM group of 14 people. The study was conducted for 3 weeks with a frequency of action 2 times a week. Collecting data in this study using primary and secondary data. Primary data is obtained directly from respondents through interviews, questionnaires, focus groups, or interview data from researchers with informants. Secondary data were obtained from the internet in the form of journals and articles, as well as data from the Simpang Tiga Pekanbaru Health Center in the form of data on the overall elderly and the total number of elderly who experienced osteoarthritis. The data analysis used in this research is univariate analysis and bivariate analysis.

3.RESULTS

1. Univariate Analysis

Table 1 Distribution of Frequency Percentage of Pain Intensity in Osteoarthritis

No	Pain	Strengthening exercise	Range of mation (ROM)
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	intensity	Pre test		Post test		Pre test		Post test	
		f	%	f	%	f	%	F	%
1	There is no pain (0)	0	0	1	7,14	0	0	0	0
2	Mild pain (1-3)	2	14,28	13	92,85	2	14,28	6	42,85
3	Moderate pain (4-6)	12	85,71	0	0	12	85,71	8	57,14

Based on table 1, it shows that there is no pain intensity (0) before Strengthening Exercise is 0% and after it is 7.14%. Mild pain intensity (1-3) before Strengthening Exercise was 14.28%, and after was 92.85%, moderate pain intensity (4-6) before Strengthening Exercise was 85.71% and after was 0%. While the pain intensity without pain (0) before ROM was 0% and after 0%, mild pain intensity (1-3) before ROM was 14.28% and after 42.85%, moderate pain intensity (4-6) before ROM of 85.71% and after 57.14%.

Bivariate Analysis

Table 2 Comparison of Average Pain Intensity Before and After Strengthening Exercise Therapy is given

Strengthening Exercise	N	Mean	Std . Deviation	CI 95%		P Value
				Lower	Upper	
Pre Test	14	4,64	,745	2,842	4,015	0,00
Post Test	14	1,21	,802			

Based on table 2, it was found that the pain intensity of the Strengthening Exercise group, the pre test was 4.64 and the post test after being given Strengthening Exercise therapy was 1.21. The statistical test results obtained p value = 0.000 which is smaller than alpha ($p < 0.05$). This shows that there is a significant decrease between the pre test and post test after being given Strengthening Exercise therapy

Tabel 3 Perbandingan Intensitas Nyeri Rata-Rata Sebelum Dan Sesudah Diberikan Terapi Range of motion (ROM)

Range Of Mation (ROM)	N	Mean	Std . Deviation	CI 95%		P Value
				Lower	Upper	
Pre Test	14	4,21	,699	-0,43	1,043	0,68
Post Test	14	3,71	,825			

Based on table 3, it was found that the pain intensity of the pre-test ROM group was 4.21 and the post-test group was 3.71. The statistical test results obtained p value = 0.68 which is greater than alpha ($p > 0.05$). This shows that there is no significant decrease between pre-test and post-test after being given ROM therapy

Tabel 4 Perbedaan Efektifitas Strengthening Exercise dan Range Of Mation (ROM)

Kelompok	N	Mean	Std . Deviation	CI 95%		P Value
				Lower	Upper	
Strengthening Exercise	14	1,21	,802	-3,132	1,868	0.000
Range Of Mation (ROM)	14	3,71	,825			

Table 4 shows that the mean pain intensity after the Strengthening Exercise is 1.21 SD, 802 and in the ROM group the mean value is 3.71 with SD, 825. The statistical test results obtained p value = 0.000 which is smaller than alpha ($p < 0.05$). This shows that there is a comparison between Strengthening Exercise and ROM, it is found that Strengthening Exercise is more effective in reducing pain intensity with osteoarthritis than ROM.

4.DISCUSSION

Gamit (2014) argues that Strengthening Exercise is a type of exercise that is useful for improving balance, improving posture, providing stability to the arms and legs to develop movement coordination skills which are the basis of balance skills. The results of Setiarini's (2017) study obtained significant results with a value of $p = 0.000$ where $p < 0.05$, which means that H_a is accepted and H_o is rejected, meaning that there is an effect of adding strengthening exercise to TENS on increasing the functional ability of knee osteoarthritis in the elderly. This research is in line with Nasirudin (2017), where the results of the Wilcoxon test are $p = 0,000$ where ($p < 0.05$), this means that H_o is rejected, so it can be concluded that giving Strengthening Exercise can improve the balance of erector spine muscle performance in players. beginner futsal. ROM is a range of motion exercise in the joints, the effect of ROM training on joint flexibility of the

elderly. ROM exercise can be used as a non-pharmacological therapy in reducing pain in elderly people with osteoarthritis (Bell, 2014). Research by Iversen et al, (2013) explained that ROM exercise is effective if it is done for 8 meetings in 4 weeks. This study is in line with Marlina (2015) that ROM is effective in reducing pain intensity in osteoarthritis patients if it is done 2 times a day for 4 weeks and according to Tsai et al. (2013) also said that 55 respondents exercise activity in the form of ROM 3 times per week (20). -40 minutes each exercise) is effective if 20 weeks. According to Bella (2014) Physical activity in the form of ROM, which is proven to reduce joint pain, 70% of respondents have a joint pain scale 3 (mild pain) and 30% of respondents have a joint pain scale 2 (mild pain) after intervention in the form of ROM during 4 weeks. Based on the results of research and related journals, the authors assume that Strengthening Exercise therapy is more effective in reducing pain intensity in elderly people with osteoarthritis than ROM.

5.CONCLUSION

1. The results showed that the strengthening exercise experienced a significant reduction in pain intensity in the elderly with osteoarthritis with a P value = 0.000. While there was no ROM exercise action, there was a significant decrease in pain intensity with p value = 0.68.

2. The results showed that there was a comparison of the effectiveness of Strengthening Exercise and ROM on reducing pain intensity in the elderly with osteoarthritis at the Simpang Tiga Puskesmas, Pekanbaru with p value = 0.000 <0.05.

6.SUGGESTION

It is hoped that the next researchers will conduct further research on the benefits of Strengthening Exercise and ROM on reducing pain intensity in elderly people with osteoarthritis, with a longer study time and a larger sample.

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