The Effect of Stretching on Reducing Lower Extremity Joint Pain in the Elderlies at the Binjai Elderly Service Unit

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Abstract

Pain is one of the main complaints that drives a person to come to health services. Aging is a natural process experienced by every living creature. The process includes several changes such as physiological, psychological, social and spiritual status. One of the causes of physiological changes in the musculoskeletal system is joint pain. There are several ways to overcome this, namely by practicing footwork (stretching). The aim of this study was to determine the effect of leg movement exercises (stretching) on reducing lower extremity joint pain in the elderly at the Elderly Care Service in Binjai. The type of research used in this research is pre-experimental design with a one group pre test-post test design. The population in this study was 52 elderly people aged 45-59 years. The samples in this study were 10 respondents in the treatment group and 10 respondents in the control group. The sampling technique used in this research is Non Probability Sampling, purposive sampling type. Data was taken using questionnaires and observation sheets. The variable is those who experience lower extremity joint pain. Next, the data were analyzed using a paired t-test with a significance level of $p \leq 0.05$. The results showed a decrease in joint pain after giving exercise (stretching). The conclusion is that stretching reduces lower extremity joint pain in the elderly. By reducing joint pain, elderly people can become more active, productive and can live out their old age more comfortably. For future researchers, it is recommended that the scope of the research be deeper for more accurate results by involving a large sample, longer research time and stricter methods of controlling confounding factors.

Keywords : Joint Pain, Middle age, Stretching

INTRODUCTION

An elderly person is someone who, due to age, experiences biological, physical and social changes (Zulfa et al., 2023). One of the physical changes in the elderly is musculoskeletal changes including muscle atrophy, slow movement, reduced strength, and joint stiffness For most elderly people, pain is a problem that will affect their daily activities and quality of life (Noorratri & Hartutik, 2020).

In old age, changes occur in the body's systems, especially in the musculoskeletal system and damage to other tissues which causes arthritis. The aging process causes a decline in musculoskeletal function. This decrease in function causes various complaints such as pain, stiffness and weakness (Tarigan, 2019). However, the main complaint of this disease is joint pain. Joint pain in the elderly is influenced by causal factors, namely degenerative factors. Meanwhile, predisposing factors include age, gender, physical activity, diet, disease and stress. The process of cartilage degeneration in the musculoskeletal system in the elderly causes an increase in interosseous pressure because the bones experience excessive growth at the edges of the joints and cause lumps (osteophytes). This increase will stimulate stimuli in the pain

nociceptors (receptors) and be perceived in the brain cortex as joint pain (Despitasari et al., 2020).

Pain is the main factor that causes a person to feel discomfort and inhibits the individual's ability and desire to carry out activities. Therefore, individuals who experience pain will seek efforts to eliminate the pain and restore comfort by seeking treatment and health care. One effort to overcome joint pain, especially in the lower extremities, is leg movement exercises (stretching). Based on research conducted by the Department of Internal Medicine, Medical Faculty, University of North Sumatra, the Health Research and Development Agency (Balitbangkes) of the Ministry of Health, and the North Sumatra Health Service during 2020, the prevalence of musculoskeletal joint pain disorders was 66.9% of male and female respondents (Tumanggor & Ginting, 2020).

Physical exercise is very helpful in preventing rheumatism from recurring (Noorratri & Hartutik, 2020). Based on information from Health News, in 1999 the number of elderly people in Indonesia was approximately 16 million people. The World Health Organization, WHO estimates that by 2025 the number of elderly people in Indonesia will be 60 million, perhaps one of the largest in the world. From the results of a study on the socio-economic conditions and health of the elderly carried out by the National Commission on Elderly in 10 provinces in 2006, it is known that the most common disease suffered by the elderly is joint disease (52.3%). This disease is the main cause of disability in the elderly (Delano, 2021).

Based on data obtained in North Sumatra, the prevalence of osteoarthritis is 10 percent from 13.5 percent (Amalia, 2021). Apart from that, data obtained by researchers from the Elderly Care Service Binjai in 2020, shows that rheumatic disease is in 2nd place out of the top 10 most common diseases, amounting to 72.96% of the population aged 45-64 years. According to research by Mustagfirin (2020), Range of Motion (ROM) exercises can increase the range of motion of joints. Elderly people with less intensity of joint movement can cause joint stiffness and muscle weakness which results in disability and joint pain, so joint movement training (ROM) is needed in the elderly (Herawaty, 2022).

According to a survey conducted in 2023, around 40% of Indonesians aged over 40 years have complaints of joint and muscle pain. And there are around 75% of elderly patients at UPT who experience inflammation of the joints. Rheumatism is a musculoskeletal disease that mostly affects the elderly. This disease causes many complaints suffered by patients, including neck pain, leg pain, low back pain, hip pain, knee pain and pain in various other joints. One type of rheumatic disease that often accompanies old age and causes musculoskeletal disorders, especially osteoarthritis (Sa’adah, 2020).

Based on a study published in the Arthritis Care and Research journal, physical exercise can reduce and prevent arthritis joint pain for eight weeks with an exercise frequency of twice a week for one hour by increasing joint flexibility (Ningrum et al., 2023). Stretching your muscles regularly can reduce muscle tension, reduce spasticity, help you move more freely, and create better awareness or perception of your body. Stretching can also improve the range of motion of joints, blood circulation, increase self-confidence, make the body more relaxed and healthy, and improve joint movement (Alba, 2022). Joint movement physical training (ROM) allows for stretching and strengthening of muscles which can help increase joint mobility so that the muscles can absorb impact better, as well as reduce pressure on the cartilage and joints which ultimately reduces the symptoms of joint pain. Based on the data above, researchers are interested in conducting research on the Effect of Stretching on Reducing Lower Extremity Joint Pain in the Elderly at the Binjai Elderly Services UPT.

METHODS

Type of research used in the researc This is a quasi experimental design research. defines experimental research as research that is used to look for the effect of certain treatments on others under conditions which is under control. This research was conducted at the UPT Pelayanan Lanjut Usia Binjai. Researchers carried out the research process for one month (18 March – 23 April 2024).

The population is the totality of a subject or research data with certain characteristics and meeting predetermined criteria. The population in this study was 52 elderly people aged 45-59 years. The sample in this study were elderly people who had complaints of joint pain at the UPT Pelayanan Lanjut Usia Binjai.. The treatment and control groups were divided based on the characteristics of mild, moderate and severe pain levels with the same composition in each group and met the inclusion criteria. They were also willing to participate in this research by providing written consent. In this sample size research, the researcher was able to obtain 10 respondents in the treatment group and 10 respondents in the control group. The sampling technique used in this research was Non Probability Sampling, purposive sampling type,

Data collection in this research used instruments in the form of observation sheets and questionnaires taken from Garrison J Susan sources. Basics of Medical Therapy and Rehabilitation, to determine the level of joint pain in the elderly pre-post test treatment in two groups (control and treatment) using the Bourbonais pain scale according to Smeltzer, S.C and Bare, B.G. The validity test of the instrument was carried out by an expert lecturer in the field of gerontic nursing from the Faculty of Nursing, University of North Sumatra, while the

reliability test was carried out on 20 different people from the research sample, using KR-21 analysis. The independent variable in this study is the stretching intervention for fracture patients and the dependent variable in this study is the adaptation of fracture patients.

RESULTS

The results of the research include the characteristics of the respondents as research subjects, which will discuss the effect of physical exercise on joint movement (range of motion) on reducing joint pain in the form of a bar chart including gender, age, education level, sports activity and diet history. Meanwhile, it specifically displays the level of joint pain before and after being given physical exercise intervention for joint movement (range of motion)

Table 1. Respondent's gender is associated with the level of joint pain

Variables measured		Treatment							
		Male				Female			
		Pre test	%	Post test	%	Pre test	%	Post test	%
Pain	No pain	0	0	0	0	0	0	6	66,7
	Light	0	0	1	100	2	22.2	2	22,2
	Currently	1	100	0	0	6	66,7	1	11,1
	Heavy	0	0	0	0	1	11,1	0	0
	Total	1	100	1	100	9	100	9	100
Variables measured		**Control**							
		Male				**Female**			
		Pre test	%	Post test	%	Pre test	%	Post test	%
Pain	No pain	0	0	1	100	0	0	1	11,1
	Light	1	100	0	0	1	11,1	1	11,1
	Currently	0	0	0	0	7	77,8	7	77,8
	Heavy	0	0	0	0	1	11,1	0	0
	Total	1	100	1	100	9	100	9	100

Table 1 shows a comparison of respondents' joint pain levels based on gender. Before being given joint movement physical exercise (ROM) intervention, the majority of female respondents (66.7%) suffered from moderate pain in the treatment group and 77.8% in the control group. After being given joint movement physical exercise (ROM) intervention, the level of joint pain was reduced in the treatment group, namely by 66.7% or 6 female respondents experienced a decrease in joint pain from moderate and severe pain to no pain, although there were still 2 respondents who suffered from mild pain. . Male respondents also experienced a decrease in pain level from moderate pain to mild pain. Meanwhile, in the control group, the majority of respondents, both men and women, had the same level of joint pain both pre and post test, although there was 1 respondent who experienced a decrease from severe pain to no pain.

Table 2. Respondent's age is associated with the level of joint pain

Variables measured		Treatment											
		45-49 years old				50-54 years old				55-59 years old			
		Pre-test	%	Post-test	%	Pre-test	%	Post-test	%	Pre-test	%	Post-test	%
Pain	No pain	0	0	1	50	0	0	3	100	0	0	2	40
	Light	1	50	1	50	0	0	0	0	1	20	2	40
	Currently	0	0	0	0	3	100	0	0	4	80	1	20
	Heavy	1	50	0	0	0	0	0	0	0	0	0	0
	Total	2	100	2	100	3	100	3	100	5	100	5	100
Variables measured		**Control**											
		45-49 years old				50-54 years old				55-59 years old			
		Pre-test	%	Post-test	%	Pre-test	%	Post-test	%	Pre-test	%	Post-test	%
Pain	No pain	0	0	0	0	0	0	2	40	0	0	0	0
	Light	1	33.3	1	33,3	1	20	0	0	0	0	0	0
	Currently	2	66,7	2	66,7	4	80	3	60	1	50	2	100
	Heavy	0	0	0	0	0	0	0	0	1	50	0	0
	Total	3	100	3	100	5	100	5	100	2	100	2	100

Table 2 shows a comparison of pain levels based on age both before and after intervention in the treatment and control groups. Before being given the intervention, 4 respondents (80%) suffered from moderate pain aged 55-59 years in the treatment group, and 4 respondents (80%) suffered from moderate pain aged 50-54 in the control group. This shows that respondents aged 50-59 years are prone to suffering from joint pain. After being given the intervention, in the treatment group there was a decrease to no pain in each age group, amounting to 50% at age 45-49 years, 100% at age 50-54 years, and 40% at age 55-59 years. Meanwhile, in the control group, there was a decrease from mild pain and moderate pain to no pain by 40% at the age of 50-54 years.

Table 3. Respondents' education level is associated with the level of joint pain

Variables measured		Treatment															
		SD				SMP				SMA				PT			
		Pre-test	%	Post-test	%	Pre-test	%	Post-test	%	Pre-test	%	Post-test	%	Pre-test	%	Post-test	%
Pain	No pain	0	0	5	62,5	0	0	0	0	0	0	1	100	0	0	0	0
	Light	2	25	3	37,5	0	0	0	0	0	0	0	0	0	0	0	0
	Currently	5	62,5	0	0	0	0	0	0	1	100	0	0	1	100	1	100
	Heavy	1	12,5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	8	100	8	100	0	0	0	0	1	100	1	100	1	100	1	100
Variables measured		Control															
		SD				SMP				SMA				PT			
		Pre-test	%	Post-test	%	Pre-test	%	Post-test	%	Pre-test	%	Post-test	%	Pre-test	%	Post-test	%
Pain	No pain	0	0	1	14,3	0	0	1	33,3	0	0	0	0	0	0	0	0
	Light	1	14,3	1	14,3	1	33,3	0	0	0	0	0	0	0	0	0	0
	Currently	5	71,4	5	71,4	2	66,7	2	66,7	0	0	0	0	0	0	0	0
	Heavy	1	14,3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	7	100	7	100	3	100	3	100	0	0	0	0	0	0	0	0

Table 3 shows a comparison of the respondents' education level with the level of joint pain before and after the intervention. Before the intervention, the majority of respondents (62.5%) or 5 respondents with elementary school education suffered from moderate pain in both the treatment and control groups. After the joint mobility exercise (ROM) intervention in the treatment group, there was a decrease in joint pain in respondents with elementary school education from moderate pain to no pain by 5 respondents, with high school education 1 respondent experienced a decrease in joint pain from moderate pain to no pain. Meanwhile, in the control group, 1 respondent with elementary school education experienced a decrease in joint pain from severe pain to no pain.

Table 4. Respondents' sporting activities were associated with levels of joint pain

Variables measured		Treatment											
		Walking				Exercise				Never			
		Pre-test	%	Post-test	%	Pre-test	%	Post-test	%	Pre-test	%	Post-test	%
Pain	No pain	0	0	2	66,7	0	0	1	33,3	0	0	3	75
	Light	0	0	0	0	0	0	2	66,7	2	50	1	25
	Currently	3	100	1	33,3	2	66,7	0	0	2	50	0	0
	Heavy	0	0	0	0	1	33,3	0	0	0	0	0	0
	Total	3	100	3	100	3	100	3	100	4	100	4	100
Variables measured		**Control**											
		Walking				**Exercise**				**Never**			
		Pre-test	**%**	**Post-test**	**%**	**Pre-test**	**%**	**Post-test**	**%**	**Pre-test**	**%**	**Post-test**	**%**
Pain	No pain	0	0	0	0	0	0	0	0	0	0	2	25
	Light	0	0	0	0	0	0	0	0	2	25	1	12,5
	Currently	2	100	2	100	0	0	0	0	5	62,5	5	62,5
	Heavy	0	0	0	0	0	0	0	0	1	12,5	0	0
	Total	2	100	2	100	0	0	0	0	8	100	8	100

Based on table 4, it shows that before the intervention the level of joint pain in the treatment group, data was obtained that all respondents (100%) suffered from moderate pain who did exercise and 2 respondents (50%) suffered from mild pain who never did exercise. Meanwhile, in the control group, most respondents (62.5%) who never exercised suffered from moderate pain. After the intervention in the treatment group there was a decrease in the level of joint pain in each sports activity. Respondents who never exercised experienced a 75% reduction in joint pain from moderate pain to no pain, respondents who walked also experienced a 100% reduction from severe and moderate pain to mild and no pain. Meanwhile, in the control group, the level of joint pain decreased in respondents who never exercised by 25% from severe and mild pain to no pain.

Table 5. Respondents' dietary history is associated with the level of joint pain

Variables measured		Treatment							
		Vegetables				Offal, Nuts and Melinjo			
		Pre test	%	Post test	%	Pre test	%	Post test	%
Pain	No pain	0	0	4	66,7	0	0	2	50
	Light	2	33,3	2	33,3	0	0	1	25
	Currently	3	50	0	0	4	100	1	25
	Heavy	1	16,7	0	0	0	0	0	0
	Total	6	100	6	100	4	100	4	100
Variables measured		**Control**							
		Vegetables				**Offal, Nuts and Melinjo**			
		Pre test	%	Post test	%	Pre test	%	Post test	%
Pain	No pain	0	0	1	20	0	0	1	20
	Light	1	20	1	20	1	20	0	0
	Currently	4	80	3	60	3	60	4	80
	Heavy	0	0	0	0	1	20	0	0
	Total	5	100	5	100	5	100	5	100

Based on table 5, it shows that the level of joint pain in the treatment group before the intervention mostly suffered from moderate pain, 4 respondents (100%) who consumed offal, nuts and melinjo. Meanwhile, in the control group, 4 respondents (80%) who consumed vegetables suffered from moderate pain. After the intervention in the treatment group, there was a decrease in the level of joint pain in respondents who consumed vegetables by 66.7% from severe and moderate pain to no pain and in respondents who consumed offal, nuts and melinjos, the level of joint pain decreased by 75% from moderate pain. becomes mild and painless. Meanwhile, in the control group, there was a 20% decrease in those consuming vegetables from moderate pain to no pain and a 40% decrease in those consuming offal, nuts and melinjos from severe pain to moderate pain and mild pain to no pain.

Table 6. Results of observing pain intensity before and after doing joint mobility (ROM) physical exercise for the treatment and control groups

No	Treatment		No	Control	
	Wilcoxon Signed Rank Test			***Wilcoxon Signed Rank Test***	
	Pre	***Post***		***Pre***	***Post***
1	2	2	11	1	1
2	2	1	12	3	2
3	3	1	13	2	2
4	2	0	14	2	2
5	2	0	15	2	2
6	2	0	16	2	0
7	2	0	17	2	2
8	1	0	18	2	2
9	1	0	19	2	2
10	2	1	20	1	0
	SD = 0,568	**SD = 0,707**		**SD = 0,568**	SD = 0,850
	Mean = 1,90	**Mean = 0,50**		**Mean = 1,90**	Mean = 1,50
	p = 0,006			**p = 0,102**	

In table 6, it appears that there is a difference in the level of joint pain before and after doing joint mobility (ROM) physical exercise. Of the 10 respondents in the treatment group, 9 respondents experienced a decrease in joint pain, 1 respondent experienced no decrease or increase or the level of joint pain was the same both before and after the intervention. Meanwhile, in the control group, out of 10 respondents, there were 7 respondents with constant pain levels, and 3 respondents experienced a decrease in joint pain. Based on the Wilcoxon Signed Rank Test statistical test, it was found that there was a difference in pain intensity before and after doing joint mobility (ROM) physical exercise in the treatment group with a value of p=0.006 and a significance value of p<0.05, while in the control group with a value of p=0.102 and significance value p>0.05.

Table 7. Comparative observation results of the treatment and control groups after doing joint mobility (ROM) physical training

No	Treatment	No	Control
	Mann Whitney Test		***Mann Whitney Test***
	Post		***Post***
1	2	11	1
2	1	12	2
3	1	13	2
4	0	14	2
5	0	15	2
6	0	16	0
7	0	17	2
8	0	18	2
9	0	19	2
10	1	20	0
	SD = 0,707 Mean = 0,50		SD = 0,850 Mean = 1,50
	p = 0,015		

In table 7, it appears that there is a difference between the level of joint pain after doing joint mobility (ROM) physical exercise in the treatment group and the control group. The mean in the treatment group was lower, namely 0.50. Furthermore, the results of the Mann Whitney Test obtained p=0.015, this shows that there is a significant difference between the control and treatment groups because p<0.05, thus the hypothesis is accepted. This means that physical joint mobility (ROM) training can reduce joint pain in the elderly.

DISCUSSION

In the following, researchers will discuss the level of joint pain before and after being given joint movement physical exercise (ROM) intervention and identify its effect on joint pain, apart from that, they will also discuss differences in pressure and pulse frequency on pain characteristics. Based on the results of observations made by the researcher, the results obtained

in the bar diagram in Figure 6 show that before carrying out joint movement (ROM) physical exercise, of the 10 respondents in the treatment group and 10 respondents in the control group, there were 70% or 14 respondents who suffered from moderate pain, 20% or 4 respondents suffered from mild pain, and 10% or 2 respondents suffered from severe pain. The incidence of joint pain in 14 respondents out of 20 respondents who have been explained, can be influenced by the aging process that occurs due to a person's age, which can cause several changes in the body, especially visible in the musculoskeletal system and the tissue around the joints (Refideso et al., 2024). This can be proven by the majority of respondents (80%) aged 50-59 years suffering from moderate pain. Joint pain in the elderly is caused by degenerative cartilage. Articular cartilage is significantly impaired due to decreased chondrocyte function and matrix mechanical properties resulting in degeneration in the form of fibrillation of the joint surface and thinning of the thickness. These progressive degenerative changes increase the prevalence, expansion and disruption of the structure and function of the articular cartilage which becomes increasingly severe with increasing age, thus, in the elderly there is stiffness and limited movement due to joint pain associated with degeneration of the articular cartilage, increased subchondral bone density. and osteophytes. By the age of 30, the cartilage covering the joint surfaces of the supporting bones begins to break down and wear out which can cause deep vertical fissures to appear and the cells that produce the cartilage to die or become less active, causing the cartilage layer to erode, and the underlying bone to become exposed to the bone. opposite. This contact will cause pain and cause crepitus when the joint is moved. Thus, increasing age can influence the severity of joint pain in the elderly.

Degenerative diseases, trauma and the aging process are common causes of joint pain. Continuous loading on the joints will accelerate the degenerative process, for example due to obesity, although obesity is not a cause of degeneration, obesity will worsen degeneration, especially in joints that bear the weight of the body (Wahyuni et al., 2022). Inflammation of the joints or rheumatism does not appear immediately, the process is gradual and once affected it will become chronic. The risk of developing rheumatism is quite large for those who live an unhealthy daily lifestyle, such as liking fatty foods, especially animal fats (Amalia, 2022). Other factors that can worsen joint pain are activities that exceed the individual's capacity and psychological stress Based on research that has been conducted, the majority of respondents (90%) were women with moderate pain levels of 66.7% in the treatment group and 77.8% in the control group, gender can influence a person's level of joint pain, this is in accordance with theory that a decrease in the hormone estrogen can affect the severity of joint pain. Estrogen is a hormone that functions to maintain a balance between the bone formation process by

osteoclast cells and the process of calcium absorption from bones by osteoclast cells. Because estrogen production decreases, the activity of osteoclast cells in absorbing calcium from bones increases, while the function of osteoclast cells as a bone-forming tool decreases, so that bones will experience calcium hardness and become more porous over time. This impact also occurs on cartilage, where the cartilage also becomes porous and if it rubs, pain will occur (Kusumaningrum et al., 2020).

This is in accordance with the theory that food ingredients containing animal fat in the body change into eicosanoid substances. , in limited quantities this substance is really needed by the body, however if eicosanoid levels exceed normal limits it can cause inflammation in the joints (Subekti et al., 2021). Offal, nuts and melinjos are foods that contain high levels of purine. Uric acid is a normal product resulting from the breakdown of protein into purine (the basic ingredient of uric acid), the accumulation of uric acid in the joints can cause arthritis and cause pain (Wahab & Wahyuni, 2021). Based on the theory explained previously, it can be concluded that consuming ingredients that contain high levels of purine can aggravate pain levels, because purine is a substance that should be excreted from the body. Apart from the ingredients mentioned, spinach, cabbage, durian can also make joint pain worse.

Excessive activity and lack of exercise are also factors that can influence joint pain in the elderly. Based on the research that has been carried out, data obtained in diagram 5.4 shows that the majority of elderly people who suffer from pain (60%) work as housewives. Meanwhile, sports activity data in diagram 5.5 shows that the majority of samples (60%) who suffer from pain have never done sports. Excessive activity causes heavy muscle contractions and frequent bone-to-bone contact, causing crepitus when the joints are moved with the cartilage starting to break down (Konrad et al., 2021). Elderly people who never exercise can also cause muscle and joint stiffness, which will make joint pain worse, because it can cause mechanical pressure which will stimulate the release of pain receptors and be perceived in the brain as pain (Gharisia et al., 2021).

The factors that can influence joint pain as previously explained are evidence that not only internal factors such as psychological stress can aggravate joint pain, but external factors in the elderly such as sports activities, healthy consumption patterns and the type of work carried out can also have an influence. against increased joint pain in the elderly. Joint pain is one of the most common causes of discomfort in the elderly and can disrupt their activities and health. Based on the nursing concept according to Callista Roy, recipients of nursing care services are individuals, families, groups, communities or society. Each is treated by the nurse as a holistic and open adaptive system. Elderly people aged 45-59 (middle age) are the group

receiving services in gerontic nursing, who mainly have joint pain problems. The adaptation system in the elderly group has input that comes from internal individuals (Moltubakk et al., 2021).

The results of the Wilcoxon Signed Rank Test analysis in table 1 show a value of p=0.006 (p<0.05) in the treatment group, this means there is a difference in the level of pain before and after doing physical joint movement (ROM) exercises. Joint mobility physical training (ROM) is a rehabilitation program that can increase joint range of motion and reduce joint stiffness (Elsa et al., 2023). In addition, this exercise can be used to increase muscle strength around the joints, so that the joints can move freely, and can reduce pressure on the cartilage and joints. The most important benefit of joint mobility exercises (ROM) for arthritis sufferers is improving joint movement caused by joint pain by helping the process of entering nutritional materials into the joints and removing metabolic products (Hatano et al., 2019).

Based on the results of research in the control group, the results of the Wilcoxon Signed Rank Test analysis in table 1 show a value of p=0.102 (p>0.05), this means that the level of pain before and after daily activities without doing joint movement physical exercise (ROM) does not experience change significantly. Based on the results of the Mann Whitney Test analysis, p=0.015 (p<0.05), this shows that there is a significant difference between the control and treatment groups, thus the hypothesis is accepted, that physical joint movement (ROM) training can reduce joint pain in the elderly. Joint movement physical training (ROM) during the research was carried out at each respondent's residence, this was not in accordance with the plan in the research proposal, because the types of interests and time each respondent had were different, but this did not affect the implementation process exercise. Respondents began to feel a decrease in joint pain complaints after doing joint mobility (ROM) physical exercise for 1 week, which was obtained from researchers' interviews with respondents regarding the evaluation of joint pain felt by respondents every week during exercise. In the elderly, it is necessary to pay attention to the stages before doing joint movement exercises, starting with a warm-up (5 minutes), because this will reduce the risk of injury, then the exercises are carried out regularly starting from the upper to lower extremities, each movement 5-10 repetitions slowly, plus 2- 4 repetitions to close to 15-20 repetitions for 20-30 minutes, because it can train muscle and joint flexibility slowly so that joint pain can be reduced.

CONCLUSIONS

There is an effect of leg movement exercises (stretching) on reducing joint pain in the elderly. Using the paired test, the p value was 0.000 or p <0.05. Joint pain in the elderly before being given physical exercise for joint mobility (ROM), data showed that the majority of the elderly (70%) were at a moderate level of pain in both the treatment and control groups. There was a difference in the level of joint pain before and after joint movement physical training (ROM) in the treatment and control groups. After being given joint movement physical training (ROM) for 4 weeks, there was a decrease in the level of pain from mild pain and moderate pain to no pain by 60% , and from moderate and severe pain to mild pain by 30% in the treatment group. With this research, it is hoped that nurses can apply physical joint movement exercises to elderly people who suffer from joint pain in carrying out nursing actions and future researchers are expected to use more samples to obtain more accurate research results.

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