

## EFFECT OF ELDERLY EXERCISE ON CHANGES PAIN INTENSITY IN RHEUMATOID ARTHRITIS

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### ABSTRACT

*Rheumatoid Arthritis (RA) is a chronic, systemic disease that typically develops slowly and is characterized by recurrent inflammation of the joints. Elderly gymnastics is a series of movements specifically designed for the elderly, and can be used as an independent therapy to reduce RA pain. This study aims to analyze the Effect of Elderly Gymnastics on Changes in Pain Intensity in Rheumatoid Arthritis Patients at the Paranginan Health Center. The research design used was a Quasi-experimental one group pre-test post-test design. The population is all elderly people who have RA. The number of samples in this study were 20 respondents, taken using a random sampling technique. The statistical test used is Wilcoxon. The results of the study showed that the intensity of joint pain before exercise for the elderly experienced severe pain, and afterward experienced mild pain, and there was a significant effect of giving exercise to the elderly on changes in RA pain with a value of  $p=0.000$  ( $p<0.05$ ). It is expected that the elderly routinely intervene in elderly exercise independently to reduce RA pain.*

**Keywords:** elderly exercise, rheumatoid arthritis, pain

### 1. BACKGROUND

Elderly (elderly) is the chronological age of more or more than 60 years. The aging process is a lifelong process. Aging is a natural process which means that a person goes through three stages of his life, namely children, adults and old (Alpin, 2016). The health of the elderly currently poses an important problem in the field of health both physically and psychologically (Qonita *et al.* , 2021). The physical problem that often occurs in the elderly is rheumatoid arthritis which causes joint pain (Aulia *et al.* , 2022) .

According to WHO (2016), as many as 355 million people in the world have *Rheumatoid Arthritis* (RA), which means that 1 out of 6 people in the world suffers from Rheumatoid Arthritis. It is estimated that this figure will continue to increase until 2025 with indications that more than 25% are expected to experience paralysis (Williams, 2016) . In Indonesia, rheumatoid arthritis reaches 23.6% to 31.3%. This figure indicates that the

incidence of rheumatoid arthritis is high. Based on Regional Health Research data (Riskesdas, 2018) , an increase in the number of the elderly population experiencing rheumatoid arthritis occurs in East Java with a percentage of 18.6%.

*Rheumatoid Arthritis* (RA) is often found in the elderly because of a decrease in the musculoskeletal system and muscle weakness or physical decline, and in the elderly with obesity, the joint load is too heavy, resulting in inflammation of the joints which can cause pain, stiffness and swelling in the joints (Aulia *et al.*, 2022).

One of the manifestations of RA is pain. Pain is an unpleasant experience and makes a person experience limitations in physical activity (Ramie *et al.*, 2021). Pain is not a disease but a manifestation of a disease, which must be treated immediately. However, it is a phenomenon that Indonesian people, especially in rural or suburban areas with a

middle to lower economy, tend to do self-medication for knee pain such as using spices, seeking alternative treatments or even allowing the pain to continue (Dinda Eka, 2019). When the pain is unbearable, you cannot carry out activities and self-medication cannot overcome the pain, then seek medical help. This behavior is possible due to the lack of knowledge of the community and local customs (Irwan, 2017).

The presence of pain makes a person afraid to make movements in the area of pain so that it can cause stiffness and be more limited in carrying out activities. This can reduce their quality of life (Malo et al., 2019). Given these bad consequences, effective management of *rheumatoid arthritis is needed* (Chintyawati, 2018) . Management of RA based on the *evidence based guideline 2nd edition of the American Academy of Orthopedic Surgeons, 2013* is divided into conservation, pharmacological and surgical management. The most recommended conservation management is self-management program, physical exercise and aerobic exercise. Meanwhile, the most recommended pharmacological recommendation is the use of non-steroidal anti-inflammatory drugs (NSAIDs) either orally or topically (Legiawati & Priliatika, 2017).

Types of physical exercises that can be performed on rheumatoid arthritis patients include passive, active *Range of Motion (ROM)*, *strengthening exercises* /stretching exercises and aerobics such as walking, cycling, swimming and gymnastics for the elderly (Chairil *et al.* , 2017) . The goals of this *exercise* include improving joint function, protecting joints from damage by reducing stress on joints, increasing joint strength, preventing disability and increasing physical fitness. This physical exercise is adapted to the patient's condition. If there is joint pain

during activity, fatigue and swelling, this exercise needs to be evaluated (Royani et al., 2018)

Elderly gymnastics is a series of movements specifically designed for the elderly. The movements performed in elderly gymnastics are not high *impact* but *low impact* which are a series of movements for daily activities combined with soft, non-beating music which creates a relaxed atmosphere. The selected muscle movement is a movement that creates a relaxed atmosphere. The selected muscle movement is one that does not cause too much of a burden (Karunianingtya & Kumaat, 2020).

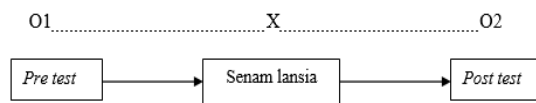
Based on the results of the study (Desy Indah Sari, 2018)there is an effect of doing elderly exercise on reducing Rheumatoid Arthritis using the *pre-experimental method* with a *one group pre-post test design design*. The pain level of the respondents before and after being given the elderly exercise intervention was 8.235 with a  $p=0.000$ . Rheumatoid arthritis in Indonesia of the total population in Central Java (4683 in rural areas and 1071 in cities), the prevalence of rheumatoid arthritis is 0.2% in rural areas 0.3% from a study from Jhon Hopkins, United States that the prevalence in the world reaches 1 % to 2% and the number of Rhemaoid arthritis is more in men than women.

Based on a preliminary survey conducted by researchers at the Paranginan Health Center, it was found that there were 1551 elderly visits to Parangan Health Center in 2019, 1509 in 2020 and 1637 in 2020. This shows an increase in the number of elderly visits each year to Paranginan Health Center. From the observation of paranginan health center medical record data, it was found that the majority of elderly who came to visit the health center complained of joint pain. The

results of interviews conducted by researchers with 6 elderly people said that they had joint complaints, some said pain in the knees in the morning, and pain when walking. And the results of interviews related to the Community Health Center program regarding elderly exercise, the elderly said that at the Public Health Center there was an Elderly Gymnastics Program, but the elderly rarely participated in it. Based on the background above, the researcher is interested in conducting research on "The Effect of Elderly Gymnastics on Changes in Pain Intensity in Rheumatoid Arthritis Patients at Paranginan Health Center, Humbang Hasundutan District".

## 2. RESEARCH METHODOLOGY

This type of research is a quantitative study using pre-experimental methods with a *one group pre-post test approach*. The research design of *one group pre-post test design* is to reveal causal relationships by involving one group of subjects. The *pre-test and post-test research designs* can be described as follows:



The sampling method used in this study was *probability sampling* using *Simple Random Sampling* because all elderly people have the same opportunity to become research participants.

However, in conducting this research, the number of research samples was 20 respondents. One of the contributing factors is the routine activities of the elderly, namely going to the fields and the occurrence of the Covid 19 pandemic so that the elderly prefer not to leave the house.

To measure the intensity of *rheumatoid arthritis pain*, namely by using a

questionnaire shared to respondents. Questionnaire consist of 22 questions. If Respondent answered "always" is given a value of 5, "often" is given a value of 4, "sometimes" is given a value of 3, "rarely" is rated 2, "never" is given a value of 1. So the highest score is 110 and score Lowest is 22. Next will categorized as with use statistical formula. With pain categories, namely no pain, mild, moderate and severe pain.

## 3. RESULTS

### 1. Characteristics of Respondents

Characteristics	n	%
Type sex		
Man	12	60
Woman	8	40
Age		
5- 65	11	55
66 -80	9	45

Based on this table it can be seen that the characteristics based on gender are mostly male as much as 60% and based on the age of the majority 55-65 years as much as 55%.

### 2. Pain Intensity Before Given Elderly Exercise

Pain Intensity Before	n	%
Moderate Pain	8	40
Severe Pain	12	60

Based on this table it can be seen that the characteristics based on pain intensity before being given elderly exercise are the majority of severe pain as much as 60%.

### 3. Pain Intensity After Given Elderly Exercise

Pain Intensity After	n	%
Moderate Pain	6	30
Mild Pain	14	70

Based on this table, it can be seen that the characteristics based on pain intensity after being given elderly gymnastics, the majority of mild pain is 70%.

### 4. Effect of Elderly Exercise on Pain Intensity

in Rheumatoid Arthritis Patients			
Pain Intensity	%	Z	p - value
Before intervention	3.60	-4,177	0.000
After intervention	1.50		

#### 4. DISCUSSION

##### 1. Pain Intensity Before Given Elderly

###### Exercise

The results of research on the intensity of joint pain in elderly rheumatoid arthritis before given the majority of the intervention was moderate pain as much as 60%. This matter obtained results measurement intensity painful which done researcher using the *Rheumatoid Arthritis Pain Scale questionnaire* (RAPS) as much 12 respondents answered that they often experience very severe pain, pain very bother when currently sleep and as much 15 respondent say joints feels rigid in morning day not enough more During 1 hour. The high percentage of elderly who experience severe pain in this study caused because besides happening inflammation on joints consequence decrease fluid senovial on patient *rheumatoid arthritis* also due to environmental factors in the cold Humbang Hasundutan area could the more aggravate symptom painful on sufferer rheumatoid arthritis.

*Rheumatoid Arthritis* is the most common autoimmune disease, viz inflammation of the joints that occurs in adults and the elderly. Rheumatoid Arthritis called as disease inflammation chronic which especially influence joints hand and foot on rheumatoid arthritis often feel pain, pain that occurs, namely in the joint area that is marked by weakening the muscles so that the pain getting worse, pain rheumatoid arthritis occurs stiffness on joints especially after get up sleep in the morning. joint stiffness also happens while doing activities such as exercising, walking, so to do the activity limited, painful

on rheumatoid arthritis have score that is 1-4 (Chabib et al., 2016).

He added age could influence function musculoskeletal ie systemic inflammatory disease leading to joint destruction leading to on disturbance immobilization permanent. Based on characteristics age respondents, the lowest age is 65 years and the highest is the age of 80 years showing age elderly. Someone who is aged 55 years and over will experience changes in biological, physical, psychological, and social as well as aspect of life including health (Pangaribuan & Olivia, 2020).

Impaired immobilization occurs due to loss of endurance, decline period muscle, atrophy and lost actual joint. So that client no able to move continuously and are very at risk of falling (Rohman, 2019). Based on results study intensity painful respondent before done intervention gymnastics elderly got intensity pain before intervention is 3.60.

Painful which occur on sufferer *rheumatoid arthritis* consequence inflammation on synovium which cause stiffness joint in the morning and does not subside after 1 or 2 hours. Joint inflammation of increasing pain and fatigue. Swelling and pain joints occur on a number of part body like hand, foot, elbow and wrist right and left hand and feet (Wahyuni, 2018).

##### 2. Pain Intensity After Given Elderly

###### Exercise

Based on results study found that pain intensity respondent after done gymnastics elderly During 1 week, majority experience decrease, as many as 10 respondents (50.0%) with no pain and 10 respondents experienced mild pain as many as 10 respondents (50%) experienced change intensity painful on respondent. Matter this show exists changes in pain intensity felt by the elderly after being

given the intervention gymnastics elderly. Happening change intensity painful on elderly after given the intervention can be seen from the results of measuring the pain intensity scale use RAPS as much 15 people say after done their elderly exercise interventions feel pain in rheumatoid arthritis start reduce.

Elderly gymnastics is an easy light exercise done, no burdensome and could applied to elderly. Activity exercise will help the elderly body to stay fit and can reduce intensity pain (Safari & Marlina, 2015). Gymnastics elderly is light exercise that is easy to do and not burdensome, which can applied to the elderly. This sports activity will help the elderly body so that permanent fit and permanent fresh, because gymnastics elderly this able to train bones to stay strong, encourage the heart to work optimally and help remove free radicals which roaming inside body (Huda *et al.*, 2022)

The research results support the research conducted (Suharjono *et al.*, 2009) which researching about influence gymnastics elderly to change painful joint on elderly in ward complex Kenjeran, sub-district bulak, Surabaya. All respondent elderly in Ward Complex kenjeran Bulak District in the control group aged 65-70 years was 10 people (100%) for the treatment group and 10 people (100%). Results of research found that in the treatment group experienced changes in painful joint. Painful characteristic very subjective as well as have unique manifestations for each individual. Pain is an experience complex and involve multiple dimensions namely: dimensions physiological covers location, draft, duration, etiology. Dimensions sensory includes: intensity, quality and pattern pain. Pg this in accordance results study which carried out in the elderly group in the Kenjeran Complex Village of 10 people on group treatment, 9 people which at first sigh painful moderate, 8 people who

experienced a decrease in pain to mild pain. By because that elderly must routine follow gymnastics elderly so that could Upgrade quality live (Huda *et al.*, 2022)

Based on this, the researcher has the assumption that doing routine Elderly gymnastics is a very appropriate way to be done by bunch elderly because could give influence which good for health elderly. Elderly which experience *rheumatoid arthritis* usually experience disturbance flavor comfortable painful so that very difficult for do activity. With intervention gymnastics elderly somebody individual capable change style quality his health from which bad becomes good.

### 3. Effect of Elderly Exercise on Changes in Pain Intensity in Rheumatoid Arthritis Patients

The results of research on the effect of elderly exercise on changes in pain intensity on elderly sufferer Rheumatoid arthritis use test Wilcoxon obtained mark  $Z = -4,177$  and get mark  $p.s\ value = 0.000$  ( $p < 0.05$ ), which means there is an effect of elderly exercise on changes in intensity painful Rheumatoid Arthritis On elderly at the health center Paranginan Humbang Hasundutan Regency. This happens because of exercise the elderly will help the elderly body to stay fit and can reduce intensity painful. the very influential for reduce intensity pain on rheumatoid arthritis.

The results of this study are in line with the research that examines about the effect of elderly gymnastics on reduction of joint pain in the elderly at the health center. From the results of the t-test that has been done, the average pain is obtained joint pretest 23.53 and posttest 15.29 with a pretest standard deviation of 7.739 and posttest 7.065, there is a difference in value where there was a

decrease before exercise for the elderly and after the exercise for the elderly. Statistical test results  $p=0.000$  so concluded there is influence which significant Among not yet exercise for the elderly and after the exercise for the elderly at the puskesmas Medan luck.

From the results of this study it is hoped that after being given a gymnastic intervention elderly respondent capable do activity with good and no experience intensity painful rheumatoid which heavy. And could reduce after the intervention is carried out so that the elderly have a better quality of life long. This is in line with research (Sarwoko, 2020) elderly exercise is a light exercise that is easy to do, not burdensome and can applied to the elderly. Sports activities will help the elderly body to permanent fit, fresh and could reduce intensity painful.

Based on this, the researchers assumed that the elderly exercise intervention this have influence to change intensity painful before done gymnastics elderly and after done gymnastics elderly. Matter this prove that intervention gymnastics elderly effective for resolve intensity painful on elderly *rheumatoid arthritis* gymnastics elderly this capable change quality life healthy elderly becomes better.

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