

The Effect of Rheumatic Gymnastics on Reducing Joint Pain in Elderly People With Rheumatoid Arthritis: A Literature Review

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ABSTRACT

A person is said to be elderly when they reach the age of 60 and experience various changes. Elderly is the last stage of life growth. Rheumatoid arthritis is one of the causes of chronic disease and reduced motor function in the elderly which leads to musculoskeletal disease. One type of physical activity that can help overcome joint discomfort is rheumatic exercise. This study aims to ascertain whether rheumatic exercise can reduce joint discomfort in older adults suffering from rheumatoid arthritis. The four keywords “elderly” AND “rheumatic exercise” AND “pain” AND “rheumatoid arthritis” were used in this literature review, which was retrieved from research materials found in the Google Scholar database. Five journals related to the research topic were found. The findings of the five articles reviewed showed that rheumatic exercises are effective in lowering joint pain scores in older adults with rheumatoid arthritis. The majority of studies found that rheumatic exercises are effective in reducing joint pain scores in older adults suffering from rheumatoid arthritis. For future researchers, it is expected to expand the scope of references not only from Google Scholar.

INTRODUCTION

A person is said to be elderly when they reach the age of 60 and experience many changes. Elderly is the last stage of life development (Ratnawati, 2019). Many diseases affect humans as they age, including chronic conditions and reduced organ function in the musculoskeletal, neurological, hearing, visual, respiratory and cardiovascular systems (Suryani, 2018).

One factor in the occurrence of chronic diseases and decreased motor function in the elderly that has an impact on musculoskeletal system disorders is Rheumatoid Arthritis (Rany, 2018). Rheumatoid arthritis (RA) is a disease in the form of chronic autoimmune inflammation, where the body's immune system is reduced and disturbed, causing damage to joint organs and the synovial layer, especially in the hands, knees and feet (Masruroh, Nuraini A, 2020). The prevalence of osteoarthritis was 6.8% in 2008 and is expected to double to 16.2% by 2040. The Ministry of Health of the Republic of Indonesia highlighted the number of people with osteoarthritis in 2012, which showed that about 11.5% more Indonesians had the disease, meaning that one in ten lives in Indonesia has osteoarthritis.

According to Riskesdas (2018) the number of rheumatoid arthritis sufferers in Indonesia reached 7.30%. As the number of rheumatoid arthritis sufferers in Indonesia increases, the level of awareness and misconceptions about this disease is quite high. This situation explains the lack of knowledge of the Indonesian people, especially sufferers, to know more about rheumatoid arthritis.

Physical exercise, especially rheumatic gymnastics, is a promotional measure as an effort to prevent and relieve pain and serves as an additional therapy. One of the complaints of people with rheumatoid arthritis is pain that can permanently stop joint function (Dinartika et al, 2018).

One type of physical activity that can help overcome joint discomfort is rheumatic gymnastics. This exercise focuses on joint movement as well as lengthening and strengthening the muscles, as these muscles allow the joints to support the body (Afnuhazi, 2018). In addition, offering this therapy can affect the emotional and cognitive functions of the cerebral cortex, resulting in relaxation and positive impressions that can reduce pain (Elviani et al., 2022). Many researchers examining the provision of rheumatic exercises in elderly people have demonstrated this.

The average pain scale before rheumatic exercise was 4, and the average pain scale after rheumatic exercise was 2, based on the research findings of Hasanah et al. (2023). This suggests that rheumatic exercise therapy has an impact on reducing pain associated with rheumatoid arthritis.

According to research by E. Pujiati, W.H.A. Mayasari, Anik Suwarni, Idris Yani P, and Lilis Murtutik (2017) with the title Rheumatic Gymnastics Improving the Quality of Life of Elderly Mothers in Dukuh Pendem Kulon, Japanese Village, Mejobo District, Kudus Regency, the body feels fresh and relaxed after two weeks of rheumatic gymnastics which is done two to three times a week with a duration of 30 to 60 minutes each (Rahmawati, 2014).

Based on the background and previous research, the authors are interested

in researching these problems with the aim of knowing the effect of rheumatic gymnastics on reducing joint pain in elderly people with rheumatoid arthritis.

METHODS

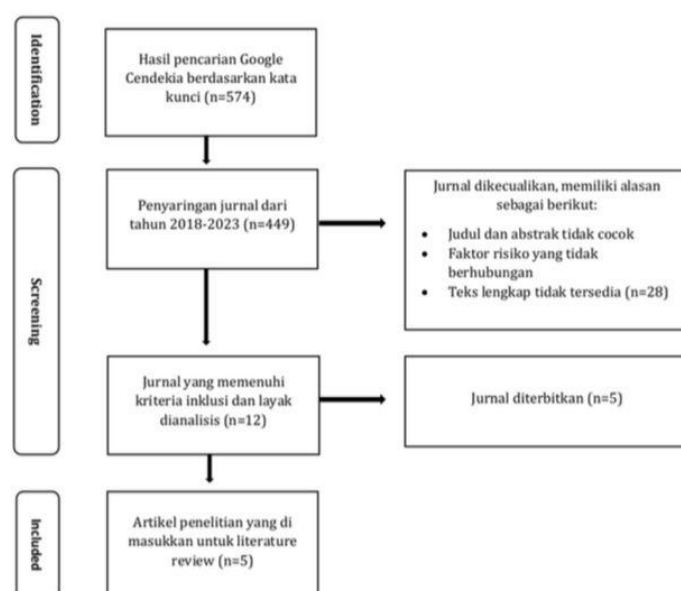
Applying a literature review to research articles is the analysis technique used in this study. A literature review is a research methodology that involves collecting and filtering the main ideas of previous research and examining a number of expert summaries that have been written in the text. This research involved several techniques, including collecting literature data, reading and taking notes, and processing the collected research materials. The terms “elderly”, “rheumatic exercise”, “pain”, and “rheumatoid arthritis” were used in the Google Scholar database. Scientific articles published in Indonesian journals between 2018 and 2023 met the selection criteria.

The methodology of this literature study used a comprehensive approach, including searching online publications and research journal databases. By reviewing national journals in the Google Scholar database portal, the inclusion criteria stated that all studies evaluated, including those related to the impact of rheumatic exercises on the elderly, were included in this scientific work. “The Effect of Rheumatic Gymnastics on Reducing Joint Pain in Elderly Patients with Rheumatoid Arthritis” was the title of the research review. The elderly population was used for this study.

By entering the four keywords “elderly” AND “rheumatic exercise” AND “pain” AND “arthritis” into Google Scholar, 574 articles were found. 449 articles were found that met the 2018-2023

publication criteria after screening. These publications were then omitted for the following reasons: full text was not available; titles and abstracts did not match; and risk variables were not associated. This left 28 papers. Twelve items remained after being screened again using the pre-defined inclusion criteria. Five articles were then selected for study after being examined based on the exclusion criteria and relevant material. However, a further five works were disqualified due to inappropriate debate. Chart 1 shows the steps in selecting articles.

Flow chart of journal identification and search



RESULT

Table 1. Research Articles on the Effect of Rheumatic Gymnastics on Decreasing Joint Pain in Elderly Patients with Rheumatoid Arthritis

| No | Researcher | Article Title | Sample Design | Sample Size | Level of Analysis | Research Variables | Research Results |
|----|--|--|--|-------------|--------------------------|---|---|
| 1 | Muthia Nanda Sari, Ramadhani yati, Desy Wulandari | Rheumatic Gymnastics on Changes in Joint Pain Score in Elderly Patients with Rheumatoid Arthritis in the Working Area of the Puskesmas Sungai Jawi Luar Village, West Pontianak District, Pontianak City | Experiment curation pre test and post test control group | 80 | Univariate and Bivariate | Effect of Rheumatic Gymnastics, Changes in Joint Pain Score | Hypothesis testing resulted in a p value of 0.000 at pretest and 0.000 at posttest. Because the p-value is less than 0.05, H ₀ is refuted and H ₁ . Rheumatic gymnastics has an impact on changes in joint pain scores in elderly rheumatoid arthritis patients at UPTD Puskesmas Sungai Jawi Luar Village, West Pontianak District, Pontianak City both before and after rheumatic gymnastics. |
| 2 | Amelia Dinartika, Edi Purwanto, Indah Nur I. | Rheumatic Gymnastics on Reducing Osteoarthritis Pain in Elderly Patients at Tresna Werdha Nirwana Puri Social Institution Samarinda | Experiment curation pre test and post test control group | 22 | Univariate and Bivariate | Effect of Rheumatic Gymnastics, Reduction in Osteoarthritis Pain | Based on the results of the Wilcoxon hypothesis test, rheumatic gymnastics has a p-value of 0.003 in the intervention group, and a p-value of 0.157 in the control group, this indicates that there is no effect on reducing osteoarthritis pain. The p-value (0.003) indicates a significant effect on pain reduction. |
| 3 | Imelda Erman, Pitri Noviadi, Ari Athiutama, Ulfa Novliza. | Rheumatic Gymnastics on Pain in Elderly Patients Suffering from Rheumatoid Arthritis. | Experimental curation with nonequivalent control group design | 30 | Univariate and Bivariate | Effect of Rheumatic Gymnastics, Pain | With a significant value of 0.035, the statistical test findings showed that the pre-test pain score of the intervention group was 4.07 and decreased by 2.60 in the post-test. This rheumatic exercise helps older adults suffering from rheumatoid arthritis reduce pain. |
| 4 | Nyayu Uswatun Hasanah, Rahmalia Afriyani ² , M. | Decrease in Rheumatoid Arthritis Pain Scale with Rheumatic Gymnastics in the Elderly | Pre-experimental design, using one group pretest-posttest design | 29 | Univariate and Bivariate | Rheumatic Gymnastics, Decrease in Rheumatoid Arthritis Pain Scale | With a p-value of 0.001, the Wilcoxon test results showed a significant difference between the mean Rheumatoid Arthritis pain scale scores before and after rheumatic exercise. |

| No | Researcher | Article Title | Sample Design | Sample Size | Level of Analysis | Research Variables | Research Results |
|----|-----------------------------------|--|---|-------------|--------------------------|--|---|
| | Ramadhani Firmansyah | | | | | | |
| 5 | Yeni Elviani, A. Gani, Eri Fauzia | Rheumatic Gymnastics on the Scale Joint Pain of Elderly Patients in Perigi Village, Pulau Pinang District, Lahat Regency | Quasy Eksperiment One Group With Pretest & Postest Control Group Design | 50 | Univariate and Bivariate | Effect of Rheumatic Gymnastics, Decrease in Joint Pain Scale | Based on the results of statistical tests, rheumatic exercises have an impact on reducing the joint pain scale of elderly patients at the Puskesmas Pulau Pinang, Lahat Regency (sign = 0.002). |

DISCUSSION

Judging from the many studies in the 5-year period between 2018-2023 conducted by several researchers, there has been a lot of development and sharing of findings from methods ranging from pre-experiments to pseudo-experiments using several more varied control group comparisons. When viewed from the characteristics of the respondents used in this study, the majority are elderly with an age range of 60-75 years. The limitations and classification of the elderly according to WHO classify the elderly into 4, namely: Middle age (middle age) 45 -59 years, elderly (elderly) 60-74 years, elderly (old) 75 - 90 years and very old (very old). old above 90 years (Ministry of Health, 2010). The age range of 60-74 years is the largest percentage of respondents from this study, where the age range of 60-74 years is included in the elderly / elderly category.

In this study, women were the most respondents found, calculated from the results of observations in 5 articles, almost 90% of respondents were women with an average of 50 respondents, while men only amounted to 10% with an average of 10 respondents. Gender is a risk factor for rheumatoid arthritis (Suwarni Anik, 2017). Women who suffer from rheumatoid arthritis are more at risk. Men and women have different immune systems and the ability to respond to disease, this is related to different hormonal factors in both. According to Migliaccio in Muthia (2018), joint pain in the elderly usually appears when women have entered premenopause. Women are more likely to experience joint pain due to decreased estrogen production, which causes an imbalance between osteoblasts and osteoclasts. This imbalance leads to decreased bone mass, thinning,

hollow bones, joint stiffness, and sloughing of joint cartilage. risk of postmenopausal gout development.

Rheumatic gymnastics exercises, according to Afnuhazi (2018). is an exercise to reduce pain in the joints. Because the muscles support the joints of the body, this exercise focuses on moving the joints while strengthening and lengthening the muscles.

Muthia Nanda Sari and Ramadhaniyati's (2018) analysis revealed that the pre-test and post-test pain scores had percentages. Specifically, 524 respondents reported mild pain with a percentage of 65%, and 524 respondents reported moderate pain. There were 524 respondents with a percentage (65%) who reported experiencing moderate discomfort, and 28 respondents with a percentage (35%). The percentage of respondents who did not suffer from pain on the pain scale after rheumatic activity was 36.3% or 29 respondents. In addition, 51 respondents (63.8%) reported experiencing mild pain.

Analysis by Dinartika et al., (2018) The results of the Wilcoxon test obtained a p value (0.003), which means that there is an effect of Rheumatic Exercise on Osteoarthritis pain.

Analysis by (Erman et al., 2023) Before receiving rheumatic exercises, the average pain distribution of the intervention group for elderly adults with rheumatoid arthritis was 4.07. After rheumatic exercises, the average pain score of the intervention group for elderly adults with rheumatoid arthritis was 2.60.

Hasanah et al. (2023) analyzed the average pain scale score of elderly rheumatologists at the Lama Harapan Kita Indralaya Social Home before and after

doing rheumatic activities. Before completing rheumatic activities, the average score of rheumatic elderly was 4.00 with a standard deviation of 1.301; After rheumatic exercise, the average score was 2.00 with a standard deviation of 0.689. Based on the results of the Wilcoxon test which shows p-value = 0.000 or p-value < $\alpha = 0.05$, there is a significant difference between the average value before and after rheumatic activity in elderly people with rheumatism.

Analysis by (Elviani et al., 2022) independent t-test results in bivariate analysis. Before rheumatic gymnastics was performed, the average pain level of respondents was 1.6200 with a standard deviation of 0.49031. The value is 1.3200 with a standard deviation of 0.47121 after rheumatic exercises. The mean difference between the pre- and post-rheumatic exercise periods was 0.300, with a standard deviation of 0.886, as can be observed. $P = 0.021$ is the value obtained from the statistical test findings. Therefore, it can be said that the state before and after rheumatic exercise has a significant change.

This can be caused by rheumatic exercises to overcome pain and increase endurance, improve blood circulation throughout the body in rheumatic patients so that the level of pain in elderly rheumatic patients can be reduced. Rheumatic exercises help healing. This method of body movement in rheumatic exercises can help reduce the risk of rheumatism. In addition, it is also a therapy to relieve rheumatic symptoms in the form of stiffness and joint pain felt by people with rheumatism (Purwoastuti, 2017).

Based on observations, the average pain score was calculated using observations from 5 articles, and current

theory states that rheumatic exercises affect joint pain levels in elderly adults with rheumatoid arthritis. Joint pain scores decreased significantly as a result of the changes.

CONCLUSION

Based on the findings of the 5 articles studied, rheumatic activities have an impact on reducing joint pain scores in elderly people with rheumatoid arthritis.

The conclusions reached by the researchers based on the findings of the analysis and discussion of the literature review regarding the impact of rheumatic exercises in reducing joint pain in elderly people with rheumatoid arthritis are as follows: When a person is over 60 years old, then he is considered elderly. and will experience several changes. As we age, a number of chronic diseases will appear, including rheumatoid arthritis, which attacks the musculoskeletal system. One of the nonpharmacological treatments of rheumatoid arthritis in the elderly is to provide rheumatic exercises.

Based on observations made in 5 journals studied, rheumatic activities have an impact on reducing joint pain scores in elderly people with rheumatoid arthritis.

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