



The Effect of Physical Activity on Elderly Woman with Rheumatoid Arthritis Symptoms

Review Article

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Submitted : 24-Feb-2023
Revised : 15-May-2023
Accepted : 31-May-2023

Abstract

Rheumatoid Arthritis (RA) is an autoimmune disease that causes joint inflammation. Elderly, especially women are more susceptible to RA due to hormonal factors. RA patient often feel inconvenient during physical activity because of pain in their joint. The purpose of this study was to determine the effect of physical activity on elderly woman with Rheumatoid Arthritis. This research is a literature study using traditional review method. Journal article studies were searched in Google Scholar, OneSearch Indonesia, and Garuda in Bahasa and English language that published online from 2012-2022 according to keywords. Of 9.030 studies from databases identified 30 journal studies were included. Literature studies show that the prevalence of elderly women with RA is higher than men. These studies also shows that severity of RA affects the ability of elderly to do a physical activity and physical activity itself influences reducing pain and preventing the severity of RA. The conclusion of this study is that the prevalence of elderly women with RA is higher than men and physical activity is associated with RA. Suggestions for future researchers to focus more on treatments that can be done to reduce the risk of Rheumatoid Arthritis in elderly.

Keywords: *physical activity, elderly women, rheumatoid arthritis*

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INTRODUCTION

Rheumatoid Arthritis (RA) is an autoimmune disease that causes joint inflammation. Rheumatoid Arthritis can be interpreted as a chronic systemic disease, which develops slowly and is characterized by the appearance of inflammation that often attacks the joint area [1]. This joint inflammation causes patients to experience swelling, joint pain, joint stiffness, and limited range of motion. The World Health Organization in its Global Report on Rheumatoid Arthritis (2016) states that worldwide, the number of sufferers of Rheumatoid Arthritis has reached 335 million and is estimated that there will be an increase in the number of sufferers in the future [2].

Some of the risk factors that influence a person to become a sufferer of Rheumatoid Arthritis are gender, genetics, age, socioeconomic status, education, and stress factors. Of the several factors that have been mentioned, gender (sex) and genetics are factors that play a significant role in influencing a person to become a sufferer of Rheumatoid Arthritis [3]. Based on research conducted by Arfianda et al. [4], it is said that women have a bigger risk factor for suffering from Rheumatoid Arthritis than men. This is in accordance with the theory that gender is a risk factor for the cause of Rheumatoid Arthritis. Women are more susceptible to Rheumatoid Arthritis because they are influenced by hormonal factors. Especially when women have entered menopause.

Patients with Rheumatoid Arthritis may feel inconvenient when doing physical activity, but sufferers who don't do any physical activity at all can also feel bad for the bones and joints due to

joints stiffness because the joints are rarely moved. People who are lazy to spend energy doing physical activities will have a higher risk of developing Rheumatoid Arthritis. Physical activity is highly recommended and is still beneficial for patients if it done as needed and not excessive. Light-intensity physical activity can help lubricate joints and strengthen the muscles around painful joints. In addition, physical activity can also improve blood flow while reducing stress in sufferers. Even if there is no time to do light exercise, sufferers of Rheumatoid Arthritis could just do their daily activities to keep the body active. The purpose of this study was to determine the effect of physical activity on elderly woman with Rheumatoid Arthritis.

MATERIAL AND METHODS

This research is a literature study using traditional review method. Journal article studies were searched in Google Scholar, OneSearch Indonesia, and Garuda uses the keywords of “physical activity”, “elderly women”, and “rheumatoid arthritis”. The inclusion criteria here are the criteria for journals/articles that will be taken by researchers. While the exclusion criteria are criteria for journals/articles that will not be taken.

Table 1. Inclusion and Exclusion Criteria.

Criteria	Inclusion	Exclusion
Publication Time	Studies published in the last 10 years	Studies published more than 10 years ago
Language	Bahasa and English	Other than Bahasa and English
Subject	Elderly woman	Not an elderly
Type of Article	Original article in full text (PDF)	Studies that cannot be accessed in full text (PDF)
Theme	Physical activity, elderly and Rheumatoid Arthritis	None

RESULTS

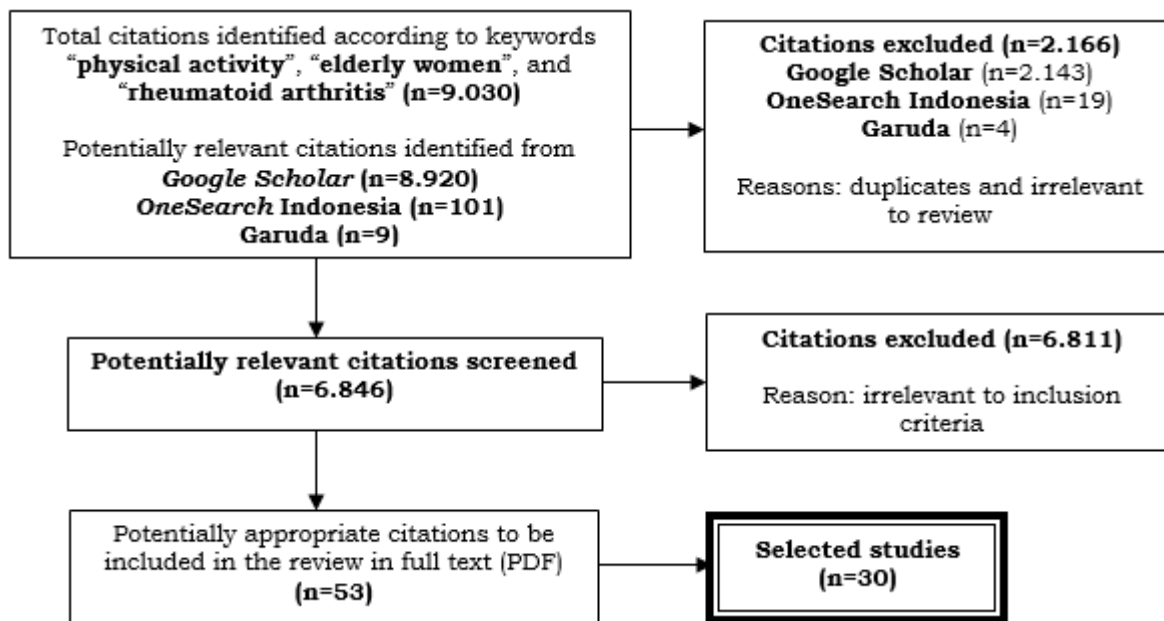


Figure 1. Screening Procedures

Total citations identified according to keywords physical activity, elderly women, and rheumatoid arthritis are 9.030 journals. Potentially relevant citations identified from Google Scholar 8.920 journals, OneSearch Indonesia 101 journals, and Garuda 9 journals. Of the many journals that were obtained, the researcher screened the studies by reading and reviewing the themes of the journals that found and then compared them with the researchers' themes. In addition, the researchers also looked at journal keywords and inclusion criteria as a screening method. Based on the screening and results, 30 journals were selected.

DISCUSSION

Based on the 30 journals that have been reviewed, there are three groups discussion that will be discussed.

Rheumatoid Arthritis in elderly women

Rheumatoid Arthritis occurs due to bone breakdown slowly. Risk factors for this disease are age, gender, injury, obesity, genetic factors, bone defects, and excessive physical activity. According to several reviewed journals, age is a factor in increasing the risk of Rheumatoid Arthritis. The results of a study conducted by Ayumar & Kasma [5] state that there is a relationship between age and the incidence of Rheumatoid Arthritis with a value of $\rho (0.041) < \alpha (0.05)$. Another study conducted by Pangaribuan & Olivia [6] also showed that there were more elderly respondents who had a higher level of elderly, i.e. 12 elderly aged 61-75 years (80%) and 3 elderly aged 55-60 years. (20%). Rheumatoid Arthritis that affects people with old age is caused by changes in the physiological and immune systems that occur in this population.

Apart from the age factor, genetic factors are also one of the things that increase the risk of Rheumatoid Arthritis. In terms of genetic factors, women are more susceptible to experiencing Rheumatoid Arthritis, especially when women enter old age. Although research conducted by Ayumar & Kasma [5] stated that there was no relationship between gender and Rheumatoid Arthritis, other similar studies stated that there was a relationship. Horiuchi et al. [7] in a journal he wrote showed that the prevalence of RA patients with female sex was higher than male ($p = 0.02$). Elderly Onset Rheumatoid Arthritis (EORA) patients ($n = 62$) with details of 14 men and 48 women while Young Onset Rheumatoid Arthritis (YORA) patients ($n = 111$) with details of 11 men and 100 women.

Rheumatoid Arthritis symptoms such as joint pain and limited range of motion are more common in elderly women. This is due to decreased physiological function of the body in elderly women as well as a decrease in the estrogen hormone which caused fragility and decreased bone strength. Hormonal changes will affect the immune system, whereas cases of Rheumatoid Arthritis generally occur in women who have reached menopause because the estrogen and progesterone hormones, which were initially balanced, decrease. The decrease in these hormones causes disturbances in joint cells, including bone loss which causes loose ligaments. In line with research conducted by Ke et al. [8] which showed that joint inflammation in 142 elderly female patients with arthritis was higher in the EORA group (79 patients) than the YORA group (63 patients).

The results of a study conducted by Eledo et al. [9] showed that positive Rheumatoid Arthritis occurred significantly in 5% of the population. The prevalence of this population is 4% in female subjects in the age range of 65-80 years and 1% in men in the age range of 61-70 years. Most of the respondents in a study conducted by Sianipar [10] were 12 women (63.16%) and 7 men (36.84%). The same thing happened in a study conducted by Wahyuni & Suprayitno [11] with a larger number of female respondents (35 people or 63.6%) than men (20 people or 36.4%).

In women, the less the estrogen hormone, the less bone mass, this causes the body to become easily injured. This reduced bone mass will cause the burden received by the bones to be greater. If the bones cannot accept the heavy load from the body, then the risk of injury will be

even higher. That is why someone who has symptoms or has suffered from Rheumatoid Arthritis is advised to maintain their weight.

Physical activity & elderly

Physical activity is one aspect that cannot be separated from everyday life. One sign that indicates that a person is healthy, is the presence of a person's ability to carry out daily activities such as standing, walking, and working. Someone will be lazy to move and instead carry out daily activities for various reasons, one of which is with existing technological advances. Even though doing daily activities is one important aspect of life to maintain health. Even though their body strength has decreased, the elderly can still be active and productive by doing light basic activities, such as doing daily activities or doing light sports according to their abilities. Physical activity greatly influences the quality of life of the elderly, this is in line with research conducted by Ariyanto et al. [12]. Research conducted by Surti et al. [13] also showed that the characteristics of the elderly have a relationship with meeting the needs of physical activity in the elderly. Cognitive abilities will decrease with age. Elderly who are still active in doing physical activity will have good cognitive function, according to research conducted by Hutahuruk et al. [14].

The elderly are also advised to move regularly or continuously so that the body's health is maintained and to minimize the occurrence of disease, in line with research conducted by Dewi [15] that a high level of physical activity is associated with good quality physical health. Elderly who are less active will make it easier for various kinds of diseases to appear due to the lack of movement of the body. The results of research conducted by Purnama & Suaahda [16] showed that most of the elderly had moderate physical activity (77.6%) and low physical activity (15.5%) due to limitations in movement. While physical activity with a high level was only carried out by a minority of respondents (6.9%) who had an age range of 60-69 years.

The older a person is, the ability to perform physical activity will also decrease. In accordance with research conducted by Laelasari et al. [17] that the age factor has a significant relationship with physical activity in the elderly ($p = 0.004$). The results of a study conducted by Baga et al. [18] showed that the physical activity carried out by the elderly is related to the physical well-being of each individual. For the elderly who still can carry out physical activities without assistive devices or independently, the level of physical activity carried out will be even better. Even though the physical activity is quite good, the elderly should still adjust the level of physical activity carried out according to their abilities [19].

Physical activity, elderly women, & Rheumatoid Arthritis

Excessive physical activity in the elderly can cause an increase in the intensity of joint pain that is felt. This is because physical activity with high or heavy intensity that is carried out results in excessive burden on the joints resulting in an increased risk of injury. Research conducted by Purwanza et al. [20] showed that the highest risk factor for recurrence of Rheumatoid Arthritis is physical activity. Data generated from 70 respondents with details of 44 elderly female sex (62.9%) and 26 elderly male sex (37.1%) showed that there were three factors for RA recurrence studied, namely the dietary pattern factor of 20 respondents (29.0%), lifestyle factors as many as 23 respondents (32.5%), and the highest is the factor of physical activity as many as 27 respondents (38.5%). The elderly are more likely to complain of pain or joint pain when they are doing or doing strenuous physical activity.

High-intensity physical activity is not recommended for the elderly, especially those with Rheumatoid Arthritis. Elderly who do excessive physical activity can accelerate joint damage. Zanzibar & Kustin [21] in a case study of two RA patients who were female with an age range of 40-60 years concluded that pain disorders are related to inflammatory or inflammatory reactions, while activity intolerance is related to impaired mobility (immobility), and impaired mobility occurs in the elderly associated with joint pain.

Elderly with Rheumatoid Arthritis will feel pain or stiffness in the joints, so that the elderly's ability to perform physical activities will decrease or experience a setback. In accordance with

research conducted by Jamini [22] on 30 respondents with an age range of 60-74 years, that there were 14 elderly people with RA who had good physical activity patterns (46.7%) and elderly people with RA who had disturbed activity patterns as many as 16 respondents (53.3%). This proves that Rheumatoid Arthritis disrupts the pattern of physical activity in the elderly. The results of the research conducted by Ardi [23] found 36 respondents (49.3%) had a good level of physical activity with details carried out by 10 respondents with RA (27.8%) and 26 respondents without RA (72.2 %). Then 37 respondents (50.7%) had poor levels of physical activity with details of 28 respondents with RA (75.7%) and 9 respondents without RA (24.3%). The results obtained show that the elderly with rheumatoid arthritis tend to have poor physical activity.

The discomfort or pain felt by Rheumatoid Arthritis sufferers often interferes with a person's activities. Even though the pain interferes with the activities carried out, people still do physical activity and ignore the pain they feel. In line with research conducted by Salim et al. [24] that walking, gardening, and elderly gymnastics have no effect on the incidence of RA in the elderly in West Bacukiki District, Parepare City.

In contrast to high-intensity physical activity, light and moderate intensity physical activity can strengthen and maintain healthy joints. So that in the elderly who are still active in physical activity and experience joint pain, it is advisable to reduce their activity a little to reduce the intensity of joint pain that is felt. Research conducted by Suswitha & Arindari [25] shows that there is a relationship between physical activity and Rheumatoid Arthritis pain (p-value = 0.002). The data generated from this study, namely, 19 respondents who felt RA pain (63.3%) had a good level of physical activity as many as 15 respondents (78.9%) and 4 respondents (21.1%) with a poor level of physical activity. Meanwhile, 11 respondents who did not feel RA pain (36.7%) had a good level of physical activity, 2 respondents (18.2%) and 9 respondents (81.8%) had a poor level of physical activity. This study shows that the elderly who experience RA pain continue to do physical activity well with the aim of maintaining a healthy body and reducing the intensity of the pain they feel.

The severity of Rheumatoid Arthritis affects the level of physical activity performed. The more severe the RA suffered, the ability of the elderly to perform physical activity will decrease. Research conducted by Narmi & S. Evi [26] shows that there is a relationship between diet and physical activity with the incidence of Rheumatoid Arthritis in the elderly. Most elderly people with moderate to severe Rheumatoid Arthritis do physical activity at a mild to moderate level. The elderly are expected to remain active in old age, but the physical activity carried out must be adjusted to their physical abilities. Physical activity in patients with Rheumatoid Arthritis must also be adjusted to the severity of the patient's condition so that the patient remains comfortable in activities and does not feel pain. Adjustment of the severity of the RA condition with the ability to carry out activities is also carried out to reduce the risk of injury.

CONCLUSION

Based on the results and discussion that has been written, the following conclusions are obtained:

1. In several journals that have been reviewed, there are more female respondents with Rheumatoid Arthritis than male respondents. Elderly women are more susceptible to Rheumatoid Arthritis than men due to hormonal factors.
2. Physical activity has an influence on maintaining the physiological and cognitive functions of the elderly, as well as for maintaining physical fitness and reducing the risk of diseases that often occur in the elderly.
3. The severity of Rheumatoid Arthritis affects the level of physical activity of the elderly, depending on their abilities.

4. Elderly who are vulnerable or already suffering from Rheumatoid Arthritis are still encouraged to do light physical activity to maintain a healthy body and help reduce joint pain that is felt.
5. Physical activity carried out by the elderly must be controlled and adjusted to the abilities and needs of the elderly to avoid the risk of injury.

ACKNOWLEDGMENT

The author would like to thank us to say the guidance who has directed well to make this research be completed properly. We also thank those who have contributed to this study, so we can finish this research well without any constrains.

CONFLICTS OF INTEREST

Conflict of interest : Authors state no conflict of interest.

Disclosure statement : No author has any financial interest or received any financial benefit from this research.

REFERENCES

1. Falsarella GR, Coimbra IB, Neri AL, Barcelos CC, Costallat LTL, Carvalho OMF, et al. Impact of rheumatic diseases and chronic joint symptoms on quality of life in the elderly. *Arch Gerontol Geriatr*. 2012 Mar 1;54(2): e77–82.
2. Kemenkes RI. Hasil Riset Kesehatan Dasar Tahun 2018. Kementrian Kesehat RI. 2018;53(9):1689–99.
3. Sangha O. Epidemiology of rheumatic diseases. 2000.
4. Arfianda A, Tharida M, Masthura S. Faktor-Faktor yang Mempengaruhi Terjadinya Penyakit Rheumatoid Arthritis Pada Lansia di Gampong Piyeung Manee Kecamatan Montasik Kabupaten Aceh Besar Factors Affecting the Occurrence of Rheumatoid Arthritis Disease in the Elderly in Piyeung Manee Village. 2022;8(2):992–1002.
5. Ayumar A, Kasma AY. Faktor-Faktor Yang Berhubungan Dengan Kejadian Arthritis Rheumatoid Pada Lansia di Puskesmas Tompobulu Kabupaten Gowa. *J Mitrasedhat [Internet]*. 2016;869–78. Available from: <http://journal.stikmakassar.com/a/article/view/173>.
6. Pangaribuan R, Olivia N. Senam Lansia pada Reumatoid Arthritis dengan Nyeri Lutut di UPT Pelayanan Sosial Lanjut Usia Binjai. *Indones Trust Heal J*. 2020;3(1):272–7.
7. Horiuchi AC, Pereira LHC, Kahlow BS, Silva MB, Skare TL. Rheumatoid Arthritis in Elderly and Young Patients. *Rev Bras Reumatol (English Ed [Internet]*. 2017;57(5):491–4. Available from: <http://dx.doi.org/10.1016/j.rbre.2015.06.002>.
8. Ke Y, Dai X, Xu D, Liang J, Yu Y, Cao H, et al. Features and Outcomes of Elderly Rheumatoid Arthritis: Does the Age of Onset Matter? A Comparative Study from a Single Center in China. *Rheumatol Ther*. 2021;8(1):243–54.
9. Eledo BO, Tommy E, Onuoha E, Dunga K, Okamgba O. The Prevalence of Rheumatoid Arthritis in the Elderly that attend Pilgrimage Centre, Elele, Nigeria. *Eur J Med Heal Sci*. 2020;2(3):10–3.
10. Sianipar CM. Pengetahuan Rheumatoid Arthritis Pada Penderita Knowledge of Rheumatoid Arthritis in Elderly at The Sipintuangen pengobatan Rheumatoid Arthritis dan sikap pengobatan Rheumatoid Arthritis dan penatalaksanaan. *J Penelit Keperawatan Kontemporer*. 2021;1(2):52–61.

11. Wahyuni F, Suprayitno E. Hubungan Perilaku Hidup Sehat dengan Kekambuhan Penyakit Rheumatic pada Lanjut Usia di Puskesmas Lendah I. *Occup Med (Chic Ill)*. 2016;53(4):130.
12. Ariyanto A, Puspitasari N, Utami DN. AKTIVITAS FISIK TERHADAP KUALITAS HIDUP PADA LANSIA. *J Kesehat Al-Irsyad*. 2020; XIII(2):145–51.
13. Surti, Candrawati E, Warsono. Hubungan Antara Karakteristik Lanjut Usia dengan Pemenuhan Kebutuhan Aktivitas Fisik Lansia di Kelurahan Tlogomas Kota Malang. *Nurs News (Meriden) [Internet]*. 2017;2(3):103–11. Available from: <https://publikasi.unitri.ac.id/index.php/fikes/article/view/450/368>
14. Hutahuruk R, Sembiring NE, Sarma A. Hubungan Aktivitas Fisik dengan Fungsi Kognitif Pada Lansia di Desa Paran-Padang Kecamatan Sipirok Kabupaten Tapanuli Selatan. *J Penelit Keperawatan Med*. 2020;3(1):82–9.
15. Dewi SK. Level Aktivitas Fisik dan Kualitas Hidup Warga Lanjut Usia. *Media Kesehat Masy Indones*. 2018;14(3):241.
16. Purnama H, Suaahda T. Tingkat Aktivitas Fisik Pada Lansia Di Provinsi Jawa Barat, Indonesia. *J Keperawatan Komprehensif (Comprehensive Nurs Journal)*. 2019;5(2):102–6.
17. Laelasari, Sari SP, Rejeki YF. Faktor-Faktor yang Berhubungan dengan Aktivitas Fisik Lansia di Posbindu Anggrek Lansia di Posbindu Anggrek Wilayah Kerja Puskesmas Wilayah Kerja Puskesmas Sindangjaya Kota Bandung Tahun 2015. 2015;1–19.
18. Baga HDS, Sujana T, Triwibowo A. Perspektif Lansia Terhadap Aktivitas Fisik Dan Kesejahteraan Jasmani Di Desa Margosari Kota Salatiga Jawa Tengah. *J Ilmu Keperawatan dan Kebidanan*. 2017;8(2):89.
19. Nahariani P, Lismawati P, Wibowo H. Hubungan antara Aktivitas Fisik dengan Intensitas Nyeri Sendi pada Lansia di Panti Werdha Mojopahit Kabupaten Mojokerto. *JournalStikespemkabjombangAcId [Internet]*. 2012;34–9. Available from: <https://journal.stikespemkabjombang.ac.id/index.php/jm/article/view/359>
20. Purwanza SW, Diah AW, Nengrum LS. Faktor Penyebab Kekambuhan Rheumatoid Arthritis. *Nurs Inf J*. 2022;1(2):61–6.
21. Zanzibar, Kustin M. Penerapan Manajemen Aktivitas Fisik dengan Manajemen Fisik Pada Lansia Dengan Rematik. *Lentera Perawat*. 2021;2(2).
22. Jamini T. Gambaran Pola Aktivitas Fisik Lansia dengan Rheumatoid Arthritis di Wilayah Kerja Puskesmas Banjarmasin Indah Tahun 2021. *J Pendidik Dan Sos*. 2022;8(2):1–6.
23. Putri Ardi A. Hubungan Jenis Makanan dan Aktifitas Fisik dengan Kejadian Rematik pada Lanjut Usia di Jorong Padang Bintungan di Wilayah Kerja Puskesmas Koto Baru Kabupaten Dharmasraya. *MENARA Ilmu [Internet]*. 2018; XII(6):20–6. Available from: <http://jurnal.umsb.ac.id/index.php/menarailmu/article/viewFile/825/736>
24. Salim A, Nuddin A, Hengky HK. PENGARUH AKTIVITAS FISIK TERHADAP KEJADIAN PENYAKIT ARTHRITIS PADA LANJUT USIA DI KECAMATAN BACUKIKI BARAT KOTA PAREPARE. *J Ilm Mns dan Kesehat [Internet]*. 2021;4(1):155–64. Available from: <http://jurnal.umpar.ac.id/index.php/makes>
25. Suswitha D, Arindari DR. HUBUNGAN AKTIVITAS FISIK DENGAN NYERI RHEUMATOID ARTHRITIS PADA LANSIA DI PANTI SOSIAL DOI: PENDAHULUAN Lanjut usia merupakan suatu usia yang berkelanjutan dari usia dewasa dengan mengalami kemunduran fisik artinya 1 dari 6 orang di dunia ini menderita r. 2020;5(2):120–30.
26. Narmi, S E. Hubungan Latihan Fisik dan Pola Makan dengan Kejadian Reumatoid Arthritis (RA) pada Lansia di Panti Sosial Tresna Werdha Minaula Kendari Tahun 2017. *J Gizi Ilm*. 2017;4(2):65–76.