



## Prevalence of Musculoskeletal Disorder in Elderly at Indramayu Government Hospital, West Java, Indonesia

Kurniawati Pipit<sup>1</sup>, Komalasari Rosella<sup>2</sup>

<sup>1,2</sup>Physiotherapy Department, Faculty of Health Sciences, Muhammadiyah Surakarta University, Indonesia  
Jl. A. Yani Tromol Pos I Pabelan Kartasura Telp. (0271) 717417 Fax. (0271) 715448 Surakarta 57162  
Correspondency author : kpipit4@gmail.com

### Abstract

**Background:** Musculoskeletal disorders are a major problem and high prevalence among elderly, characterized by joint pain and associated with age. Based on the data for patients visited in physiotherapy department at the Indramayu General Hospital during January 2021, musculoskeletal disorders was the most common case.

**Methods:** Medical records of patients as source of data that analyzed by high to low prevalence case from physiotherapy department, Indramayu General Hospital during January 2021

**Results:** The knee osteoarthritis was the highest number of musculoskeletal cases (50%). A quarter of the population suffers from low back pain, and lumbar radiculopathy had 12.5% of issues detected.

**Conclusion:** the knee osteoarthritis was being the commonest musculoskeletal problem among elderly in Indonesia, especially in Indramayu General Hospital.

**Keywords:** elderly, musculoskeletal disorders, Indramayu hospital

### Introduction

Elderly is someone who has reached the age of 60 years and over. (Pusdatin Ministry of Health 2013). The World Health Organization (WHO) explained musculoskeletal disorders include disorders in muscles, tendons, skeletal bones, cartilage, ligaments, and nerves. The types of complaints, from mild temporary pain to irreparable injury and paralysis likewise osteoarthritis, low back pain, lumbar radiculopathy, frozen shoulder, which case The most common is osteoarthritis (Nildete et al, 2020).

Among impairments identified in the National Health Interview Survey in 1988, musculoskeletal disorders were the most frequently reported almost 30 million in the US population. In 1992 the

total cost of musculoskeletal and associated conditions for all ages was \$149 billion. The elderly incurred the largest share of the direct costs of medical care (\$51 billion) with still substantial indirect costs caused by lost wages (Yelinet al, 1995). A study in Indonesia detected slightly more than one-third of the respondents about 36% from 2067 had musculoskeletal pain, described as osteoarthritis, low back pain, gouty arthritis, soft tissue rheumatism, and autoimmune arthritis, were assessed for their health-seeking behavior (Sri et al, 2019)

Various factors that can cause disorders of the musculoskeletal system are divided into primary, secondary and combination causes. Primary causes include excessive muscle stretching, repetitive activities, and unnatural work attitudes. While secondary causes include pressure, vibration and exposure to excessive cold temperatures of the microclimate. Thus, combined causes include age, gender, smoking habits, physical activity, physical strength, and body size. (Vi Peter, 2003)

According to the WHO declaration, musculoskeletal conditions are typically characterized by pain (often persistent) and limitation in mobility, dexterity and overall level of functioning, reducing people's ability to work. The musculoskeletal conditions include conditions that affect i.e: (1) joints, such as osteoarthritis, rheumatoid arthritis, psoriatic arthritis, gout, ankylosing spondylitis, (2) bones, such as psteoporosis, osteopenia and associated fragility fractures traumatic fractures, (3) muscles, such as sarcopenia, (4) the spine, such as back and neck pain and as well (5) multiple body areas or systems, such as regional and widespread pain disorders and inflammatory deseases such as connective tissue deseases and vasculitis that have of musculoskletal manifestation, for example systemic lupus eriyhematosus (WHO, 2021).

Musculoskeletal conditions are also the highest contributor to the global case that need for rehabilitation. They are among the largest contributors in rehabilitation services among children and accounted for approximately two-thirds of all adults who need rehabilitation.(WHO, 2021). The WHO also stated that the prevalence musculoskeletal conditions increases with age. The younger people are also affected, often during their peak income-earning years. Low back pain as well noted as the main reason for a premature exit out the work force. The societal impact of early retirement in terms of direct health-care cost and indirect (in example work absainteeism or productivity loss) cost is enormous. Musculoskeletal conditions are also highly associated with significant mental health decline and deteriorated functioning (WHO, 2021).

On the other hand, Osteoarthritis (OA) is a part of musculoskeletal disorder that correlates with degenerative problem, involves cartilage, joint layers, ligaments and bones so that it can cause stiffness in the joints. The onset of this disease is slow, however can cause severe joint pain to disability as well joint motion failure. Characterized by joint pain, especially during activities and reduced at rest, joint stiffness in the morning which is usually less than 30 minutes, crepitus, joint movement barriers, joint enlargement, to changes in gait (Soeryadi et al., 2017).

Based on data from the 2013 Ministry of Health's Center for Data and Information, one of the problems that are often encountered in the elderly is arthritis. The older, has higher risk of muscle reduction, with increasing of age, a degeneration process impact to reduction of stability in bones and muscles (Helmina et al, 2019)

## Methodology of research

This study had been approved by the Health Sciences Faculty, Universitas Muhammadiyah Surakarta (1292.1/C.8-III/FIK/VIII/2021). This study was conducted at the Physiotherapy Department, the Indramayu Government Hospital, West Java, Indonesia, the data was recorded from patient database in January 2021, The criteria inclusion were applied to a total of 751 patients, as well patients over 60 years old, male and female and patients with musculoskeletal disorders. The patients data were removed if had injury in upper or lower extremity. Data analysis was assumed in numbers and percentage.

## Results

**Table 1.** Characteristics of Subjects

<b>Variable</b>	<b>N</b>	<b>%</b>
<b>Gender</b>		
man	64	36.4
woman	112	63.6
<b>Profession</b>		
Private	64	36.4
Housewife	112	63.6
<b>Musculoskeletal disorders</b>		
Osteoarthritis genu	84	47.7
Low back pain	44	25
Lumbar radiculopathy	22	12.5
Frozen shoulder	7	4
Myalgia	5	2.8
Lumbar nucleus pulposus hernia	4	2.3
Stiffness joint	4	2.3
Polyarthritis	2	1.1
Rotator cuff tendinitis	1	0.6
Tendinitis	1	0.6
Trigger finger	1	0.6
Upper back pain	1	0.6

A total of 751 subjects at the Indramayu General Hospital in January 2021 were screened resulting in 176 patients who met the inclusion criteria. The number of women in this study was twice as many as men and worked as housewives. Meanwhile, all male patients were entrepreneurs. The most common musculoskeletal disorder was knee osteoarthritis, about almost 50% of the total population. A quarter of the population suffers from low back pain and one third was lumbar radiculopathy. Those were 25 % and 12.5% respectively. Frozen shoulder accounted for 4%, while HNP, joint stiffness and polyarthritis had almost equal numbers. Notably rotator cuff tendinitis, generalized tendinitis, trigger finger and upper back pain documented as the lowest population in this study.

## Discussion

The knee osteoarthritis was dominating numbers in this study, almost 50 % of population. Interestingly, women had the highest presentation than males with musculoskeletal disorders. Bunga et al reported that women had chance of OA than men. Previously significantly declared that women under 45 years of age had less numbers, however after over 50 years the frequency of OA is more in women than in man because menopause stage (Bunga et al, 2015). Suyasa et al also reported a study has done at SANGLAH Hospital in 2016-2017, stated most of the patients with knee osteoarthritis were women (70.7%), elderly people (61-70 years) (70.8%).

Gender also has an important role in the occurrence of knee OA. Women are more often affected by OA than men due to hormones regulation factor. Notably, the hormone estrogen reduces causes a decrease in bone and joint density. Other risk factors, such as mechanical factors likewise joint injury. (Sudoyo, 2009)

On the other hand, a study by Erna 2017 revealed approximately 36.25% of knee OA patients had a poor quality of life. Gloria et al stated that pain was the most complaint in knee OA, impacted to worsen the quality of life (Gloria, 2019)

Furthermore, this study reported the patients suffered about 25 % in LBP. The LBP is the main contributor to the over all burden of musculoskeletal conditions as well. Other contributor to burden of musculoskeletal conditions include fractures with 436 million people globally, OA (343 million), other injuries (305 million), neck pain (222 million), amputations (175 million) and rheumatoid arthritis (14 million). (WHO, 2021). Previously, LBP was the second high population of musculoskeletal disorders in Indonesia (Tunjung, 2009), with varies numbers, approximately 7.6% to 37% (Lailani, 2013). The acute LBP have an impact to limit the to work, emerges to emotional problems, reduces quality of life and limits social activities. While, chronic LBP is often associated with depression. Between 16.4% to 73.3% of chronic LBP patients were depressed. Depression is associated with severe and persistent pain intensity. Major Disability, high economic burden, and unpleasant events (Antunes et al, 2013). The LBP can cause activity limitations and absence from work so that it cause a large economic burden for individuals, families, communities and governments. Based on the Global Burden of Disease 2010 study (GBD 2010), of 291 health problems, declared low back pain was the largest contributor to disability in the world as measured by Years Lost due to Disability (YLD), and it was ranked 6th for the total burden of disability (Hoy et al, 2010)

Other result in this study was lumbar radiculopathy, which had 12.5%. The worsen pain LBP can develop radiculopathy as a neurological disease in the radiks neuron area which can be in the form of sensory, motor and autonomic symptoms. Lumbar radiculopathy if not treated early on, can become permanent disability. The prevalence of lumbar radiculopathy varies from about 2.2–8% (Astrid et al, 2020). The incidence of lumbar radiculopathy in the United States was estimated 3-5% of the population (Alexander et al, 2020). There was no difference in incidence rates for man or women. The men are more often affected at the age 40 years, while women are

more often affective at the age of 50-60 years (Malanga, 2018). All patients with lumbar radiculopathy, approximately 10-25% of them experience persistent symptoms for more than 6 weeks (Tarulli et al, 2007). The prognosis of lumbar radiculopathy depends on the onset of symptoms and the etiology. Previous studies mentioned that pain in lumbar radiculopathy was self-limiting. In severe causes, more rapid and appropriate management, especially for pain management, can significantly improve the clinical conditions and quality of life of the patients ( Alexander et al, 2020). Most radicular symptoms are mild to moderate and respond well to 6 weeks of treatment (Malanga, 2018) and the patients with herniated nucleus pulposus and lumbar stenosis have spontaneous resolution (Komori, 2002). Notably, around 90% of patients required surgery for lumbar herniation under go discectomy. Complication due to this procedure was only reported less than 1% of patients (Clark, 2019)

The frozen shoulder was 4% case noted in this study. The FR described pain as the usually symptom and combined with limitation of motion in all directions, especially in passive exorotation. The prevalence of FR was estimated 2% in adults and mostly within ages of 40 and 60 years and women as specific population (Salim, 2014). This study noted FR and several other musculoskeletal diagnoses were not so significant experienced in physiotherapy department at the Indramayu Hospital in January 2021.

This study had limitation while we only recorded the data within January 2021 and did not do retrospective data from the previous months. But we screened the data accurately from database and reported specific case of musculoskeletal disorders by prevalence occurred. This study can be a reference to clinicians to arrange comprehensive managements reducing the numbers of musculoskeletal disorders.

## **CONCLUSION**

The knee OA was the most common musculoskeletal disorder in elderly, especially in physiotherapy department at the Indramayu Hospital in January 2021. Degeneration process was noted as the main cause. A good management of physiotherapy and home rehabilitations were declared significantly important to reduce poor disease progression impacting to quality of life and social participation.

## **Acknowledgments**

We would like to thank to management of Indramayu Government Hospital to record the basic data of patients. The special thank to our advisor Lect. Dwi Rosella Komalasari, M.Fis.,Sp.Vest for her guidance during this study.

## **References**

Alexander C. E., Varacallo M. Lumbosacral Radiculopathy. (Update 2020 Jul 19). In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2020 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK430837/>

- Antunes, R., Macedo, B., Amaral T, and Gomes, H. (2013), Pain, kinesiophobia and quality of life in chronic low back pain and d. *Acta Ortop Bras*, 21(1), pp. 27-29.
- Astrid F. K., Kuheinderan R. K., Umar I., Siti A. S., 2020. Lumbar Radiculopathy: a Descriptive Study on Red Flag and Neurologic Symptoms in Dr. Hasan Sadikin General Hospital Bandung. *Global Medical and Health Communication*. 2020;8(1):13–20
- Bunga A. S., Muh. Ihsan, Laode B , 2015. Gambaran Penderita Osteoarthritis Di BagianBedah RSUD Arifin Achmad PeriodeJanuari 2011 - Desember 2013. *JOM FK Volume 2 No.2 Oktober 2015*
- Clark R, Weber RP, Kahwati L. Surgical Management of Lumbar Radiculopathy: a Systematic Review. *Journal of General Internal Medicine*, 2019. doi:10.1007/s11606-019-05476-8
- Erna Maryana, 2017. Gambaran Kualitas Hidup, Derajat Disabilitas Fisik Dan Kebutuhan Dasar Manusia Pada Pasien Osteoarthritis Lutut Di RSKB. Halmahera Siaga Bandung
- Gloria J. T., Su Djie T. R., Prisca D. P., 2019. Hubungan Intensitas Nyeri dengan Kualitas Hidup Pasien Osteoarthritis Lutut di RSUD Prof. DR. W.Z. Johannes Kupang 2018. *CMJ September 13, 2019*
- Hoy, D., Brooks, P., Blyth, F. and Buchbinder, R. (2010). The Epidemiology of low back pain. *Best Practise & Research Clinical Rheumatology*, 24(6), pp. 789-781.
- Komori H, Okawa A, Haro H. et al. Factors predicting the prognosis of lumbar radiculopathy due to disc herniation. *J Orthop Sci*, 2002. 7, 56–61. <https://doi.org/10.1007/s776-002-8416-0>
- Lailani, M. T. 2013. Hubungan Antara Peningkatan Indeks Massa Tubuh dengan Kejadian Nyeri Punggung Bawah pada Pasien Rawat Jalan di Poliklinik Syaraf RSUD Dokter Soedarso Pontianak. *Jurnal Mahasiswa PSPD FK Universitas Tanjungpura*. 1(1): 1-15.
- Malanga GA. *Lumbosacral Radiculopathy: Background, Epidemiology, Functional Anatomy*. Medscape, 2018. Available from <https://emedicine.medscape.com/article/95025-overview>.
- Nildete P. G., Larissa C. P., Simony F. L. N.,Angela M. A., Josiane S. S., Lelia M. S. de O., 2020. Musculoskeletal disorders of older adults: an integrative literature review. *National Library of Medicine*. 2021 May 21.
- Pusat data informasi kementerian kesehatan RI tahun 2014. *Situasi dan Analisis Lanjut Usia*
- Salim J. S., 2014. Penambahan Teknik Manual Therapy Pada Latihan Pendular Codman Lebih Meningkatkan Lingkup Gerak Sendi Pada Sendi Glenohumeral Penderita Frozen Shoulder. *Jurnal Fisioterapi Volume 14 Nomor 1, April 2014*
- Soeryadi, A., Gessal, J., & Iprogram, LSS (2017). Gambaran Faktor Resiko Penderita Osteoarthritis Lutut Di Instalasi Rehabilitasi Medik RSUP Prof. Dr. R. D. Kandau

- Manado Periode Januari – Juni 2017. In Jurnal E-Clinic (Ec 1), Volume S, No 2, Juli Desember 2017.
- Sri A., Ahmad Z. A., Harun A. R., Cesarius S. W., Handono K., Kusworini H., 2019. Int J Rheum D 2019 Jul;22(7):1297-1304. doi: 10.1111/1756-185X.13536. Epub 2019 Mar 3. Di akses 2 agustus 2021
- Sudoyo A, Setiyohadi B, Alwi I, Osteoarthritis dalam Buku Ajar Ilmu Penyakit Dalam, jilid II edisi V. Jakarta Interna Publishing. 2009. Hal 2538-2549
- Suyasa A. Y., Putu A. Komang A. K. S., 2019. Gambaran Kualitas Hidup Dan Karakteristik Sosiodemografi Penderita Osteoarthritis Di RSUP Sanglah Tahun 2016-2017. E-JURNAL MEDIKA UDAYANA. VOL 8 NO 9 (2019): VOL 8 NO 9 (2019)
- Tarulli AW, Raynor EM. Lumbosacral Radiculopathy. Neurologic Clinics, 2007. 25(2), 387-405. doi:10.1016/j.ncl.2007.01.008
- Vi Peter. Reducing risk of musculoskeletal disorders through the use of rebar-tying machines. Applied Occupational and Environmental Hygiene. 2003; 18 (9): 649-54.
- World Health Organization (WHO), 2021. Musculoskeletal Conditions. 8 February 2021
- Yelin E, Callahan L F. The Economic Cost and Social and Psychological Impact of Musculoskeletal Conditions Athritis Rheum 1995;38:1351–62 Patients at Prof. Hospital. DR. WZ Johannes Kupang 2018