International Journal of Community Medicine and Public Health
Napitupulu RM et al. Int J Community Med Public Health. 2022 Jul;9(7):2803-2807
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20221741

Original Research Article

Joint complaints in the elderly during the COVID-19

Rosintan Milana Napitupulu, Citra Puspa Juwita, James W. H. Manik*

Physiotherapy Program, Faculty of Vocational Studies, Universitas Kristen Indonesia, Indonesia

Received: 11 May 2022
Revised: 05 June 2022
Accepted: 06 June 2022

***Correspondence:**
James W. H. Manik,
E-mail: james.wamanik@uki.ac.id

ABSTRACT

Background: COVID-19 has an impact on the lack of physical activity of the elderly so that it can cause complaints in the joints such as: pain, swelling, and limited movement. This study aim of the study was to find out the prevalence joint complaints in the elderly during the COVID-19.
Method: Research is descriptive with a quantitative approach on 150 elderly people in Cililitan Village, East Jakarta, Indonesia, where data collection is carried out by community health worker (CHW) who have been trained. Primary data collection through a questionnaire containing six questions about complaints of pain, swelling, and motion limitation in the joints: neck, shoulders, elbows, pelvis, ankles, fingers, toes, waist, wrists, and knees.
Results: Joint disorders occurred by the elderly, 133 elderly (89%) had two joint problems, followed 8 elderly (5%) had problems in one joint, and as many as 9 elderly (6%) had three joint disorders. Joint complaints in the knee joint are 44%, pain in the pelvic joint 25.3%, and pain in the fingers of the hand 24%. The second complaint of swelling occurs in the knee joints by 8%, followed by the fingers and pelvic joints, which is 5.3%. The third complaint is limited movement in the knee joint 58.6%, fingers 30%, and toes 22%.
Conclusions: All respondents had joint complaints during the COVID-19 mainly occurring in the knee joints, fingers, toes, and pelvis.

Keywords: Elderly, Joint complaints, COVID-19, Knee joints, Pain

INTRODUCTION

Entering 2022 people around the world and Indonesia are still overshadowed by the COVID-19 which is leading to daily living habits. The Delta variant that took a lot of casualties is still in the process of government countermeasures in Indonesia has mutated again into a new variant that has a faster transmission rate.

Health is a very valuable and expensive thing, people yearn to be able to move smoothly, without any disturbances in their bodies. Every individual in throughout life wants physical, mental, and social health. Advances in science and technology and socio-economic improvements have an impact on improving public health degrees and life expectancy, so that the number of elderly people also increases.

In Indonesia, people aged 60 years and over are called elderly. The increase in the number of elderly people will have an impact on various lives, such as increased health service costs, decreased income/income, increased disability, the need for social support, and the preparation of an environment that is friendly to the elderly population so that there is an increase in elderly dependency.[1] This dependence is caused by physical, psychic, and social that can be described through four stages, namely weakness, functional limitations, incapacies, and inhibitions that will be experienced along with the process of deterioration due to aging processes.[2] The process of aging is a natural condition and cannot be avoided in the phase. Health problems that often occur in elderly are often called geriatric syndrome, among others: lack of movement, easy fall, incontinence, dementia and others. One of the causes of the elderly lack of movement

due to complaints of pain, swelling and limited movement in the joints: neck, shoulders, elbows, pelvis, ankles, fingers, toes, waist, wrists and knees.[5] The elderly is expected to be able to actively engage in physical activities, both in daily activities and in participating in activities with their groups. Based on the background above, the purpose of this study is to find out the prevalence joint complaints in the elderly.

METHODS

This study used a quantitative approach with descriptive design regarding complaints in elderly joints. Researchers were assisted by elderly Posyandu CHW who had been trained in data collection using questionnaires. The population of this study is elderly in Cililitan village, East Jakarta, Indonesia with a research sample of 150 elderly people with study period six month. The criteria inclusion are elderly age ≥60 years old and living in area research. The respondents were asked first if they were willing to be interviewed by enumerator. The data was collected was one week in 13 to 19 December 2021 using primary data through a questionnaire containing six questions about complaints of pain, swelling, and motion limitation in the joints: neck, shoulders, elbows, pelvis, ankles, fingers, toes, waist, wrists, and knees. The analysis using IBM SPSS statistics for windows, version 21.0 to find average and percentage.

RESULTS

People in Cililitan village live in urban areas located in the capital of Indonesia. The average age of the respondents was 68 years oldest age 91 years old and the youngest age 60 years old. A total of 150 elderly people in Cililitan village who were the subject of research all experienced joint complaints. The most respondents were women 87 elderly (58%) and the rest (42%) male.

Complaints of joint pain in the respondents were the most in the knee joints, namely 44%, followed by pelvic joints as much as 25.3%, and at the waist as much as 22.6% elderly. An overview of joint pain can be seen in Table 1.

Table 1: Number of elderly people occurring joint pain.

Joint pain	Sum	Percentage (%)
Neck	26	17.3
Shoulder	26	17.3
Elbow	20	13.3
Pelvis	38	25.3
Ankle	30	20
Fingers of the hand	36	24
Toes	36	24
Waist	34	22.6
Wrist	29	19.3
Knee	66	44

Swelling of the joints in the most respondents in the knee joints 8% and the joints of the fingers and pelvis as much as 5.3%. An overview of joint swelling can be seen in Table 2 below.

Table 2: Number of elderly people occurring joint swelling.

Joint pain	Sum	Percentage (%)
Neck	0	0
Shoulder	5	3.3
Elbow	6	4
Pelvis	8	5.3
Ankle	6	4
Fingers of the hand	8	5.3
Toes	5	3.3
Waist	4	2.6
Wrist	3	2
Knee	12	8

The incidence of joint disorders with symptoms of limited movement in the elderly is the most in the knee joint at 58.6%, then followed by limited movement on the fingers as much as 30%, and 22% of elderly people complaints of limitations on the toes. Data on joint motion limitations can be seen in Table 3.

Table 3: Number of elderly people who occurring joint limitations.

Joint pain	Sum	Percentage (%)
Neck	6	4
Shoulder	11	7.3
Elbow	13	8.7
Pelvis	29	19.3
Ankle	25	16.6
Fingers of the hand	45	30
Toes	33	22
Waist	33	22
Wrist	30	20
Knee	88	58.6

All respondents occurring joint complaints. Based on the results of the survey dominated by the elderly who have joint disorders as many as two joints, namely 133 elderly (89%), disorders in one joint as much as eight elderly (5%), and three-joint disorders as many as nine elderly (6%).

Table 4: Number of elderly people who occurring joint complaints.

Complaints to elderly	Sum	Percentage (%)
One complaint	8	5
Two complaints	133	89
Three complaints	9	6

DISCUSSION

This study uses a quantitative approach with a descriptive design that aims to find out joint complaints in the elderly during the COVID-19. The results of the study of knee joint pain complaints in the elderly are more likely to occur, which is 44% of 150, than other joint complaints. This is in accordance with the study of Abhishek Jaiswal et al which recorded as many as 64.3% of the 500 elderly in rural Ballabgarh, Haryana experienced knee joint pain with osteoarthritis (OA).[3] It can be said that the complaints of knee pain that occurred in the elderly in this study are related to the condition of osteoarthritis. This is supported by the results of studies that note that osteoarthritis is a multi-factorial condition in which aging is a major risk factor.[4] Worldwide, an estimated 10%-15% of adults over 60 years of age have some degree of osteoarthritis such as joints in the knees, hands, feet, and spine, and are also relatively common in other joints such as the shoulder and hip joints.[5] Knee OA accounts for nearly four-fifths of the worldwide OA load and increases with obesity and age.[6] Joint pain in connection with OA in the elderly is one of the factors that can limit physical activity, especially the dominant part of the joint that supports weight such as the waist, pelvis, knee and ankle joints which are progressive.[7]

The condition of osteoarthritis is strongly associated with the aging process. Osteoarthritis is an irreversible joint condition that causes pain, joint stiffness, motion limitations and disabilities associated with the aging process and the process lasts for many years and the most commonly affected are cervical joints, lumbo-sacral, pelvic joints, knees and the fingers of the most tip.[3] Globally among individuals over 60 years of age, 9.6% of men and 18% of women suffer from symptomatic OA, with the knee being the most commonly affected joint. But on the other hand Lim et al mentions that primary osteoarthritis is a chronic disease of degenerative diseases that are related, but not caused by aging.[9] As a person ages, the moisture content of their cartilage decreases, thus weakening it and making it less resilient and more susceptible to degradation. There are strong indications that genetic inheritance is one of the factors, as up to 60% of all OA cases are thought to be caused by genetic factors.

Limited physical activity in connection with OA conditions has a great negative impact on daily life in the elderly. The onset of physical and psychological well-being problems, social relationships, daily life and so on will decrease their quality of life.[2] In addition, mobility or self-care limitations among older adults are associated with poorer quality of life, decreased future functioning, increased health, social care costs, and an increased risk of death.[10]

Furthermore, the results of this study found pelvic pain complaints to be second more after knee pain which is 25.3%. This condition seems to be not common in an aging population than knee OA but is still quite prevalent. A recent systematic review of the prevalence of primary hip OA detected a clear trend towards increasing prevalence with age. The prevalence of primary radiographic hip OA increased from 0.7% in the 40-44 age group to 14% in the over-85 age group. In addition, an analysis of symptomatic hip OA from the Johnston County group was published right after a review by Dagenais et al reporting a higher prevalence of symptomatic hip OA in the population of 5.9% in the 45-54 age group increased to 17% in the over-75 age group.

Although pain in the fingers of the elderly occupies the third largest position of this study, which is 24% of the 150 elderly, but this condition is very influential on daily activities in meeting basic needs that affect the quality It is in line with studies that state that the human hand is the most commonly used part of the body during daily life activities, so that restriction of hand movements can result in loss of function and quality of life.[13]

Complaints of joint pain and stiffness in the elderly related to OA conditions can affect confidence or confidence in the ability to perform physical activity to achieve certain results, and the confidence will decrease with the presence of comorbidities that make the elderly's physical activity decrease. This is evidenced by the research of Juwita in 106 elderly people over the age of 60 in DKI Jakarta. The design of cross-sectional research with data collection through interviews using the global physical activity questioner (GPAQ) and the self-efficacy for exercise scale (SEE) concluded that there is a strong relationship between self-efficacy and work with physical activity, as well as a fairly strong relationship between comorbidity and physical activity in the elderly.[14] With respect to self-efficacy, previous research has suggested that women have low efficacy than men, this is related to the tendency of women to engage in more powerful thinking about pain.[15]

Not infrequently this concomitant disease makes the elderly feel pain every day so that the elderly often feels weak, reluctant to do activities, so spend their time sitting or lying down all day. Especially during the COVID-19 which has lasted more than two years, which caused no activities in the elderly community to be able to socialize/move due to the implementation of large-scale social restrictions policies in Indonesian. This condition will cause more severe joint pain problems. The results of the study found that physical activity had a beneficial influence on musculoskeletal pain complaints in a sample of elderly people living in the UK, both cross-sectional and longitudinal design.[16]

There is a difference in the risk level of suffering from OA between women and men where women have a higher risk of suffering from OA compared to men. The potential to suffer from more severe levels of OA is also present in women. The risk of OA in women increases with age towards menopause which underlies the

hypothesis that hormonal factors play an important role in the process of OA.[17] Previous research has sought to prove that there are effects of estrogen both endogenously and exogenously on the incidence of OA.[18]

As we age, the degenerative processes in most functions of the work of organs and systems related to between organs of the body will decrease. This includes degenerative musculoskeletal systems that lead to OA conditions. The prevalence of OA is increasing in those who belong to the older. This is in accordance with the theory of decreasing the ability of chondrocyte cells to produce collagen and extracellular matrix. The basic cellular mechanism that regulates the balance of cartilage tissue will weaken with age, causing joint damage.[18]

There is a decrease in estrogen levels in the menopause state where this condition can trigger increased levels of pro-inflammatory cytokines such as IL-1, TNF α, growth factors which will then occur increased activation of matrix metaloproteinase (MMP) and a disintegrin and metalloproteinase with thrombospondin motifs (ADAMTS) which is a protease enzyme. It can damage collagen. The influence of estrogen in lowering the production of collagen type II, X, and XI in cartilage is also able to cause cartilage degradation.[19-21] The limitation of this study is the small number of samples because it was carried out during the pandemic so that the enumerators were afraid to interview more samples, so that further research could increase number of samples.

CONCLUSION

The COVID-19 that has lasted more than two years is currently causing all respondents in the study to occurring joint pain. Based on the results of the elderly study dominated by joint complaints as many as two joints, namely 133 elderly (89%). Complaints of joint pain in the elderly are the most in the knee joints, which is 44%, which causes symptoms of limited movement in the knee joint by 58.6% of the elderly. Swelling of the joints in the most respondents in the knee joints 8% and then followed by limited movement on the fingers as much as 30%, and 22% elderly complain of limitations on the toes.

ACKNOWLEDGEMENTS

Author would like to thank to the Universitas Kristen Indonesia for helping with research funding, and to the CHW enumerator who has helped with research interview.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Sunaryo MK, Wijayanti HR, Kuhu MM, Sumedi T, Widayanti ED, Sukrillah UA, Riyadi S, Kuswati A, Politeknik Kesehatan Semarang. Gerontic Nursing Care. 2016;12.
2. Dinglu X, Wang X. Quality of Life of Older People with Osteoarthritis A Descriptive Literature Review. Qual. Life Older People with Osteoarthr. 2020;1-28.
3. Jaiswal A, Goswami K, Haldar P, Salve HR, Singh U. Prevalence of knee osteoarthritis, its determinants, and impact on the quality of life in elderly persons in rural Ballabgarh, Haryana. J Fam Med Prim care. 2021;10:354-60.
4. Anderson AS, Loeser RF. Why is OA an age-related disease. Best Pr Res Clin Rheumatol. 2010;24:1-18.
5. Tsai AG, Bessesen DH. Annals of internal medicine. Ann Intern Med. 2019;170:ITC33-ITC48.
6. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. Lancet (London, England). 2016;388:1545-602.
7. Nelson AE. Osteoarthritis year in review 2017. Clinical Osteoarthr Cartil. 2018;26:319-25.
8. Cross M. The global burden of hip and knee osteoarthritis: estimates from the global burden of disease 2010 study. Ann Rheum Dis. 2014;73:1323-30.
9. Lee WS, Kim HJ, Kim KI, Kim GB, Jin W. Intra-Articular Injection of Autologous Adipose Tissue-Derived Mesenchymal Stem Cells for the Treatment of Knee Osteoarthritis: A Phase IIb, Randomized, Placebo-Controlled Clinical Trial. Stem Cells Transl Med. 2019;8:504-11.
10. Kabiri M. Long-Term Health and Economic Value of Improved Mobility among Older Adults in the United States. Value Heal J Int Soc Pharmacoeconomics Outcomes Res. 2018;21:792-8.
11. Dagenais S, Garbedian S, Wai EK. Systematic review of the prevalence of radiographic primary hip osteoarthritis. Clin Orthop Relat Res. 2009;467:623-37.
12. Jordan JM. Prevalence of hip symptoms and radiographic and symptomatic hip osteoarthritis in African Americans and Caucasians: the Johnston County Osteoarthritis Project. J Rheumatol. 2009;36:809-15.
13. Reissner L, Fischer G, List R, Giovanoli P, Calcagni M. Assessment of hand function during activities of daily living using motion tracking cameras: A systematic review. Proc Inst Mech Eng Med. 2019;233:764-83.
14. Juwita CP, Damayanti R. The impact of self-efficacy on physical activity in the elderly. Int J Community Med Public Heal. 2022;9:2101-5.
15. Bartley EJ, Fillingim RB. Sex differences in pain: a brief review of clinical and experimental findings. Br J Anaesth. 2013;111:52-8.
16. Niederstrasser NG, Attridge N. Associations between pain and physical activity among older adults. PLoS One, 2022;17:1-12.
17. Soewandhie M. Dominant Factor In Osteoarthritis Sufferers At Rsud Dr. Mohamad Soewandhie,

Surabaya, Indonesia. 2020;9:3-8.
18. Litwic A, Edwards MH, Dennison EM, Cooper C. Epidemiology and burden of osteoarthritis. Br Med Bull. 2013;105:185-99.
19. Roman-Blas JA, Castañeda S, Largo R, Herrero-Beaumont G. Osteoarthritis associated with estrogen deficiency. Arthritis Res Ther. 2009;11:241.
20. Sasono B, Rantam FA, Suroto H, Notobroto HB, Am A. The effect of estrogen on type 2 collagen levels in the joint cartilage of post-menopausal murine subjects. J Hard Tissue Biol. 2019;28:245-50.
21. Sasono B, Suroto H, Utomo DN, Am A, Tinduh D. RUNX2 and SOX9 expression on chondrocyte hypertrophy formation in post_menopausal osteoarthritis mechanism (an experimentation on rat model). Indian Vet J. 2019;10:41-4.

Cite this article as: Napitupulu RM, Juwita CP, Manik JWH. Joint complaints in the elderly during the COVID-19. Int J Community Med Public Health 2022;9:2803-7.