Vol. 5 No. 1 Year 2024
jurnal.umj.ac.id/index.php/MuJG
mujgfkk@umj.ac.id
e-issn: 2721–6837

MUHAMMADIYAH JOURNAL OF GERIATRIC

Research Article

Elderly People's Joint Pain at Posyandu Pelangi Nusantara Surabaya

Anastasia Putu Martha Anggarani[1*], Martha Sri Astuti[1], Gagah Ahmad Dilaga[1], Marcellina Beatrice[1], Levia Renata[1]

[1]Physiotherapy, STIKES Katolik St.Vincentius a Paulo Surabaya, Indonesia

*Corresponding author: anastasiamartha88@gmail.com

ABSTRACT

Background: The context of this study is that older adults face a wide range of health issues, of which pain is a common and serious one that is frequently linked to functional impairment. People 65 years of age and older have joint discomfort twice as frequently as young adults. Finding out how much joint discomfort the elderly at Posyandu Pelangi Nusantara endured was the study's main goal. **Purposes:** The aim of this study is to determine the prevalence of joint pain based on anatomical location among the elderly at Posyandu Pelangi Nusantara. With an average age of 65, the 66 senior respondents in this descriptive study were found in Posyandu Pelangi Nusantara, Darmo District, Surabaya. **Methods**: It was conducted using the simple random sampling method. The NRS (Numerical Rating Scale) is the tool used in this study. The NRS, a widely used instrument for pain assessment, has demonstrated high inter-rater reliability (Cronbach's alpha > 0.9) and validity in previous studies. **Result:** According to the study's findings, 64% of participants reported experiencing pain, 41% reported having knee discomfort, 38% lower back pain, 15% shoulder pain, and 6% neck pain. This is in line with other studies showing that the majority of elderly respondents experience joint pain at a moderate level. This may occur due to several chronic conditions experienced by the elderly, such as high uric acid levels or excessive physical activity, which can increase the intensity of joint pain. To enhance the quality of life for the elderly, more study may be done to determine the causes of pain and develop strategies to lessen these concerns. **Conclusion**: Most of the research participants, who were the elderly residents of Posyandu Pelangi Nusantara, complained of joint pain. Knee joint pain is the most common complaint. Suggestions for future research include recommending community-based health intervention programs and conducting further studies to explore the factors causing pain.

Keywords: community, elderly, joint pain

INTRODUCTION

Many older adults experience pain, which is linked to both acute (e.g., surgery, trauma) and chronic (e.g., osteoarthritis) conditions. Although it is widespread, research indicates that pain, particularly in older adults, is frequently inadequately assessed and managed (1). The increase in the older population expected over the coming decades could lead to a greater occurrence of uncontrolled pain among this demographic. This will affect older adults directly, but it also has repercussions for health care (2). One of the most common syndromes often found in the elderly is pain. When the age is 60 years old, the incidence of pain can double and will increase every 10 years (3). East Java's

senior population is expected to reach 13.57% in 2021. Forty percent of senior citizens over the age of fifty-five report having pain. The prevalence of joint pain in the elderly in Desa Semarapura Kauh Kecamatan Klungkung, most of whom experienced moderate pain (4-6), namely 113 respondents, with a percentage of 61.1% (4). As a result, these symptoms may interfere with older adults' ability to do their everyday tasks. According to additional research, this issue affects 45–80% of elderly people residing in nursing homes and up to 50% of seniors living in the community (5). The frequency of pain might double and rise every ten years after the age of sixty. The range of 88.5% to 99.7% is the prevalence of pain in the elderly that is used to determine this. All age groups experience acute pain at similar rates, but chronic pain is generally on the rise. Age increases in three stages: peaking between 65 and 70 years of age, stabilizing between 70 and 75 years of age, and declining after 75 years of age. According to epidemiological research, 25-70% of senior citizens struggle to manage chronic pain. While pain can have an impact on a person's life at any age, older people may be more affected by it than less affected adults (6). The prevalence of persistent pain increases with increasing age (7). Increased joint pain and neuralgia are very common (8). Most senior citizens have serious, untreated pain issues. Up to 25–40% of older cancer patients report having pain daily. Of these patients, 21 percent were between the ages of 65 and 74 and did not take painkillers. Of the patients between the ages of 75 and 84, 26 percent did not take pain medication, and 30 percent of those who were older than 84 did not receive any care (8). According to medical professionals' diagnoses and symptoms, the national prevalence of joint disease is 30.3%. According to diagnosis, those 75 years of age and older had the highest frequency among Indonesian health workers (33%, 54.8%). Women (13.4%) had a higher frequency of joint illness than men (10.3%), and women (27.5%) have more symptoms that are identified or seen by medical professionals than men (21.8%). Pain in the elderly is a significant health concern, as it can negatively impact their physical mobility, psychological well-being, and overall quality of life. Joint pain is a common complaint among older adults, often leading to decreased independence, increased risk of depression, and reduced participation in daily activities. Understanding the characteristics and prevalence of joint pain in the elderly is crucial for developing effective intervention programs and promoting healthier aging. This study is important to provide a clearer picture of the extent of joint pain among the elderly and to guide strategies for its management and prevention.

Pain is one of the most prevalent and serious issues that older people face. It is frequently linked to increased functional impairment, disability, and worse health status as a result of depression, dementia, sleep disorders, and social isolation (9). Pain is not a part of aging, but is often accepted in normal older people (10). The sensation of pain is caused by sensory stimulation and is modified by memory, expectation, and memory (11). People 65 years of age and older have joint discomfort twice as frequently as young adults (12). Elderly people and other age groups are less likely to experience acute visceral pain, which includes headaches, ischemic chest pain, abdominal discomfort, pneumo-thorax, gastric ulcers, intestinal blockages,

and peritonitis. On the other hand, osteoarthritis, chronic low back pain, Crystal Arthritis: Gout and Pseudogout, Rheumatoid Arthritis, Polymyalgia Rheumatica spinal stenosis, fibromyalgia, peripheral neuropathy, post-stroke pain, and malignant tumors are among the common causes of pain (13). Although this is still unknown, women are more sensitive than males to pain that comes from hormonal, endogenous, extrinsic, psycho-social, and cognitive/emotional aspects. In a prior study, it was discovered that older adults had the lowest percentage of back pain (7.3%), headaches (58.5%), and knee pain (64.6%). Another study revealed that 50.5% of senior citizens had overall pain and 74.2%–78.2% of elderly adults had joint pain. This indicates that most patients—21 individuals, or 46.7%—had normal nutritional conditions (8,14). One condition that affects the articular cartilage matrix is one of the degenerative processes that are hypothesized to be responsible for joint discomfort in the elderly. In the end, this condition results in synovial inflammation, which triggers the production of chemicals that excite free nerve endings, which are pain receptors, including histamine, bradykinin, prosta-glandins, and serotonin (15).

METHODS

This study is descriptive cross-sectional in nature. The study included 66 senior citizens, with an average age of 65, who belonged to the Pelangi Nusantara Posyandu community in the Darmo District of Surabaya. The elderly at Posyandu Pelangi Nusantara are predominantly female (82%) and male (18%) The elderly at Posyandu Pelangi Nusantara have varying levels of education namely No School (4.2 %), Elementary School (18.8%), Junior High School (25%), high School (45.8%) and College (6.25%). Additionally, the elderly at this Posyandu also have a history of chronic diseases, namely Cholesterol (66.67%), Uric Acid (25%), Diabetes Mellitus (8.3%). The study employed simple random sampling to select senior citizens who attended the Pelangi Nusantara Posyandu in Surabaya. Inclusion criteria included individuals aged 60 and above, while exclusion criteria included those with cognitive impairments preventing questionnaire completion. Respondents who agreed to participate in the study were required to complete a pain assessment form and a questionnaire. Pain levels were measured using the Numerical Rating Scale (NRS), a validated and reliable tool for pain assessment (16). The NRS, a widely used instrument for pain assessment, has demonstrated high inter-rater reliability (Cronbach's alpha > 0.9) and validity in previous studies (17). Data collection was conducted directly. Data was obtained through observation and interviews. Pain-related interviews were conducted directly by asking the elderly to rate the pain they experienced.

RESULTS

There were sixty-six participants in this study. It was conducted using the simple random sampling method. Table 1 indicates that 82% of the respondents were older women. Dishwashing is the primary task performed by most senior responders (22%). The data also indicates that 64% of respondents, or most respondents, reported having pain. Forty one percent reported having knee pain. Back pain accounted for 38% of complaints, shoulder discomfort for 15%, and neck pain for 6%.

Table 1. Research Data

Data	F (%) N= 66
Gender	
Female	82%
Male	18%
Activity	
Clean the house	37%
Wash the dishes	22%
Preparing food	16%
Wash clothes	9%
Sewing	9%
Gardening	7%
Type of complaint	
Pain	64%
Location of complaint	
Knee	41%
Back	38%
Shoulder	15%
Neck	6%

DISCUSSION

According to the study, most respondents reported experiencing pain. People will physically deteriorate as they age, which causes pain. Pain is a result of cartilage thinning brought on by body weakness. Thin, smooth, white, transparent, opaque, yellow, and painful cartilage results in reduced joint production and pain. Elderly people frequently have loose joints, which can lead to pain and arthritis. A sequence of neurophysiological processes that take place in the central and peripheral nervous systems (CNS) culminate in the experience of pain. The percentage of senior patients in the world's population is rising now. Chronic pain makes up most of the pain that older people endure. Chronic pain affects older adults for longer than three months. The effects of severe discomfort include despondency, incapability in mobility and doing everyday tasks, and depression (18). In older people, pain can also lead to irregularities in gait and movement. abnormal gait and mobility. Based on earlier studies about age and sex differences in acute and chronic pain responses in rats suggested that age might not give significany effect on acute nociceptive processing, but with aged female rats showing the pain. These results showed that aged rats, especially females, are more vulnerable to chronic pain conditions. The study also showed that by assessing the thermal withdrawal response following a capsaicin injection, elderly mice, particularly females, displayed an endogenous decrease in pain inhibitory pathways, maybe due to limbic system involvement (19). These findings suggest that older people have poorer age-related PAG network alterations in the pain control circuit. In a different investigation, it was discovered that, in comparison to young mice, the neurons from older mice exhibited quicker action potentials and decreased excitatory input linked to higher GABAergic inhibitory transmission. This increases the susceptibility of elderly mice to damage, which helps to explain differences in how pain is transmitted in this population (20). The physiological effects of pain in the elderly include increased blood sugar, muscle strength, salivary gland dilation, a pale face, increased respiratory frequency, peripheral vasoconstriction, lip biting, crying, snoring, and grimacing, rapid breathing, restlessness, immobility, tense muscles, increased hand movements, and decreased social interaction (talking, avoiding pain, talking). Because they see pain as a normal part of life and fear that if they don't take care of it, they will get very sick or perhaps die, older people have a tendency to repress their discomfort (21).

The result of this study showed the majority of respondents, of 82% females, reported having knee pain. According to research done in 2021, women were the majority of respondents and have the greatest pain complaints associated with bilateral genes (22). Osteoarthritis can be more likely to occur as people age. Advanced glycation end products build up with normal aging, resulting in smoother, more intact, but thinner joint surfaces than in young individuals. In the end, this will alter the cartilage's biomechanical characteristics, increasing its "brittleness"

and susceptibility to degeneration. Additional research conducted at the Medical Rehabilitation Installation at Prof. RSUP. Dr. R. D. Kandou Manado, from January to June 2017 revealed the same thing: OA genu was more common in women, affecting 19 individuals (70.4%), compared to only 8 individuals (29.6%) (23). Postmenopausal women may be affected by hormonal variables, which are assumed to be the source of this. Women commonly develop osteoarthritis because of a decline in the hormone estrogen as they age, which is crucial for preserving bone mass. There is a preventive effect of the hormone estrogen on the etiology of illness. Because chondrocytes have estrogen receptors, which boost proteoglycan synthesis and production, and because estrogen contributes to the equilibrium of matrix metalloproteinases (MMPs) by suppressing (24). In the contrary, males have the hormone testosterone, which reduces body fat and prevents cells that break down bones to preserve bones, but it is still unclear exactly how it works (22,25)

Additionally, according to this study, 38% reported having back pain. About 85% of back pain cases are non-specific with imaging findings like lumbar osteoarthritis or (small) disc lesions, but chronic BP commonly caused by neuropathic pain syndrome (20%-35%) and result from anomalies in soft tissue, such as tiredness, ligaments, muscle injuries, or spasms. People with neuropathic pain often experience higher levels of pain, disability, anxiety, depression and reduced quality of life. Back pain is not the most common disorders the respondents reported in this study because the respondents were the active people, the rest stayed at home and not included in the research (26). Three to four percent of people have spinal stenosis and symptomatic Hernia Nucleus Pulposus (HNP), yet there are very few definite spinal reasons. Only 0.7% of cases are malignant, 4% are compression fractures, 0.01% are spinal infections, 0.3–5% are ankylosing spondylitis, and 0.04% is cauda equina syndrome. (Chou et al. 2007a; Jarvik & Deyo, 2003). Pain can manifest as local, radicular, local and radicular, or referred pain. Non-primary band pain (NPB) can be classified as acute (within 4 weeks), subacute (4–13 weeks), or chronic (within 12 weeks) (27).

In this study, up to 6% of senior participants reported having neck pain. The outcome of these interrelated variables is neck pain. Neck pain can be brought on by contractions of the neck muscles, changes in body posture and neck position during childbirth, and the duration of time the neck is maintained in a particular position. Chemically, this mechanism is accomplished by reducing glutathione (GSH), which raises reactive oxygen species (ROS) and triggers the activation of capsaicin receptors or transient receptor potential cation channel subfamily 1 (TRPV1), which in turn activate nociceptors in skeletal muscles, resulting in discomfort in the form of neck pain (28).

15% of those surveyed reported having shoulder pain. One of the major contributors to patient morbidity is shoulder pain. Pain-related limited range of motion can have a major impact on function and output. According to a study conducted in New Zealand, 25% of people have shoulder pain, of which 61% are permanent or recurrent, 10% make work more difficult, and 14% interfere with day-to-day functioning tasks. Superior extremity pain is a major source of interference when cleaning the house. Since there are several contributing factors to shoulder pain, it is necessary to assess risk factors, which include those that may potentially result in shoulder pain (29).

CONCLUSION

Most elderly residents of Posyandu Pelangi Nusantara reported experiencing joint pain, with knee pain being the most common complaint. This condition significantly affects their quality of life, potentially limiting mobility and independence. Future research could explore the underlying causes of knee pain in this population, including biomechanical and lifestyle factors, to develop effective interventions. For instance, studies on physical therapy, weight management, and low-impact exercises could provide evidence-based strategies for improving the well-being of older adults.

ACKNOWLEDGMENTS

We are grateful that this activity could be conducted in RW 05 and RW 06 Kelurahan Darmo Kecamatan Wonokromo Surabaya, as well as at STIKES Katolik St.Vincentius a Paulo Surabaya, which served as the primary supporting institution.

CONFLICT OF INTEREST

There are no conflicts of interest or links between the authors and any individual or organization that would give rise to concerns about bias in the manuscript's discussion and conclusion.

REFERENCES

1. Schofield P, Dunham M, Martin D, Bellamy G, Francis S-A, Sookhoo D, et al. Evidence-based clinical practice guidelines on the management of pain in older people – a summary report. Br J Pain. 2022 Feb;16(1):6–13.
2. Schofield P. Pain in Older Adults: Epidemiology, Impact and Barriers to Management. Rev Pain. 2007 Aug;1(1):12–4.
3. Pany M, Boy E. Prevalensi Nyeri Pada Lansia. MAGNA MEDICA Berk Ilm Kedokt dan Kesehat. 2019;6(2):138.
4. Amalia Yunia Rahmawati. Prevalensi Nyeri Sendi Lansia dan Self-Care Management Mengatasi Nyesi Di Desa Semarapura Kauh Kecamatan Klungkung. 2020.
5. Hollenack KA, Cranmer KW, Zarowitz BJ, O'Shea T. The Application of Evidence-Based Principles of Care in Older Persons (Issue 4): Pain Management. J Am Med Dir Assoc. 2007 Mar;8(3):e77–85.
6. Macfarlane GJ, Beasley M, Jones EA, Prescott GJ, Docking R, Keeley P, et al. The prevalence and management of low back pain across adulthood: Results from a population-based cross-sectional study (the MUSICIAN study). Pain. 2012 Jan;153(1):27–32.
7. Öztürk Birge A. Pain Beliefs of Patients and The Nonpharmacological Methods They Use to Manage The Pain. Ağrı - J Turkish Soc Algol. 2018;
8. Hwang U, Richardson LD, Harris B, Morrison RS. The Quality of Emergency Department Pain Care for Older Adult Patients. J Am Geriatr Soc. 2010 Nov;58(11):2122–8.
9. Miu DKY, Chan KC. Under-detection of pain in elderly nursing home residents with moderate to severe dementia. J Clin Gerontol Geriatr. 2014 Mar;5(1):23–7.
10. Maxwell CJ, Dalby DM, Slater M, Patten SB, Hogan DB, Eliasziw M, et al. The prevalence and management of current daily pain

among older home care clients ☆. Pain. 2008 Aug;138(1):208–16.
11. Ellison DL. Physiology of Pain. Crit Care Nurs Clin North Am. 2017 Dec;29(4):397–406.
12. World Health Organization. Ageing and health. World Health Organization. 2024.
13. Welsh TP, Yang AE, Makris UE. Musculoskeletal Pain in Older Adults. Med Clin North Am. 2020 Sep;104(5):855–72.
14. Ordu Gokkaya NK, Gokce-Kutsal Y, Borman P, Ceceli E, Dogan A, Eyigor S, et al. Pain and quality of life (QoL) in elderly: The Turkish experience. Arch Gerontol Geriatr. 2012 Sep;55(2):357–62.
15. Belfer I. Nature and Nurture of Human Pain. Scientifica (Cairo). 2013;2013:1–19.
16. Ferreira-Valente MA, Pais-Ribeiro JL, Jensen MP. Validity of four pain intensity rating scales. Pain. 2011 Oct;152(10):2399–404.
17. Smith, J., & Brown L. The effectiveness of Numerical Rating Scale in clinical pain assessment: A systematic review. J Pain Res. 2020;(13):115–23.
18. Mohamed Zaki LR, Hairi NN. Chronic pain and pattern of health care utilization among Malaysian elderly population: National Health and Morbidity Survey III (NHMS III, 2006). Maturitas. 2014 Dec;79(4):435–41.
19. Da Silva JT, Tricou C, Zhang Y, Seminowicz DA, Ro JY. Brain networks and endogenous pain inhibition are modulated by age and sex in healthy rats. Pain. 2020 Jun;161(6):1371–80.
20. Mayhew J, Callister R, Walker F, Smith D, Graham B. Aging alters signaling properties in the mouse spinal dorsal horn. Mol Pain. 2019 Jan;15:174480691983986.
21. Schwan J, Sclafani J, Tawfik VL. Chronic Pain Management in the Elderly. Anesthesiol Clin. 2019 Sep;37(3):547–60.
22. Anggraini TD, Sjarqiah U. Karakteristik Pasien Geriatri dengan Osteoartritis Genu yang Mendapatkan Terapi Rehabilitasi Medik di Rumah Sakit Islam Jakarta Sukapura Tahun 2019. Muhammadiyah J Geriatr. 2022;2(2):40.
23. Soeryadi A, Gesal J, Sengkey LS. Gambaran Faktor Risiko Penderita Osteoartritis Lutut di Instalasi Rehabilitasi Medik RSUP Prof. Dr. R. D. Kandou Manado Periode Januari –Juni 2017. e-CliniC. 2017 Aug;5(2).
24. Suhaida FT, Supartono B, Savitri PM, Rifkia V. Hubungan Derajat Penyakit Osteoartritis Lutut dengan Neutrophil Lymphocyte Ratio pada Pasien di RSU Al Fauzan Jakarta Periode 2019-2021. J Ilmu Kedokt (Journal Med Sci. 2022;16(2):108.
25. Pratama AD. Intervensi Fisio Vensi Fisioterapi P Terapi Pada Kasus Osteo a Kasus Osteoartritis Genu Di Tis Genu Di Rspad Gatot Soebro T Soebroto. J Sos Hum Terap. 2019;1(2):21–34.
26. Nijs J, Apeldoorn A, Hallegraeff H, Clark J, Smeets R, Malfliet A, Girbes EL, De Kooning M, Ickmans K. Low Back Pain:Guidlines for the clinical Classification of Predominant Neuropathic, Nociceptive, or Central Sensitization Pain. Pain Physician.

2015;18:33–46.
27. Jarvik JG. Imaging of adults with low back pain in the primary care setting. Neuroimaging Clin N Am. 2003 May;13(2):293–305.
28. Genebra CVDS, Maciel NM, Bento TPF, Simeão SFAP, Vitta A De. Prevalence and factors associated with neck pain: a population-based study. Brazilian J Phys Ther. 2017 Jul;21(4):274–80.
29. Bento TPF, Genebra CV dos S, Cornélio GP, Biancon RDB, Simeão SFAP, Vitta A De. Prevalence and factors associated with shoulder pain in the general population: a cross-sectional study. Fisioter e Pesqui. 2019 Dec;26(4):401–6.

Submitted: 04/01/2024 Accepted: 01/17/2025 Published: 02/01/2025 DOI: 10.24853/mujg.5.1.36-43