PROFESIONAL HEALTH JOURNAL
Volume 6, No. 1, December 2024 (Page. 188-195)
Available Online at https://www.ojsstikesbanyuwangi.com/index.php/PHJ/index
E-ISSN 2715-6249
DOI: https://doi.org/10.54832/phj.v6i1.697

Description of Pain Levels in Elderly Patients with Immobilization at Ruang Anggrek RSU Negara

T. Ni Made Dewi Erawati[a] * | Sang Ayu Ketut Candrawati[a] | Ni Luh Putu Dewi Puspawati[a]
[a] Sekolah Tinggi Ilmu Kesehatan Wira Medika Bali
*Corresponding Author: candrawati@stikeswiramedika.ac.id

ARTICLE INFORMATION

Article history
Received (7 May 2024)
Revised (12 June 2024)
Accepted (30 June 2024)

Keywords
elderly patients, immobilization, pain

ABSTRACT

Introduction. *Impaired mobility in the elderly is a condition of limited movement in the function of one or more of the body's extremities which can affect the independence of the elderly in carrying out daily activities physically and psychologically.* ***Objectives.*** *To determine the description of pain level in elderly patients with immobilization history.* ***Methods.*** *Descriptive research with a retrospective approach, examining the medical records of elderly patients with immobilization history who were treated at Ruang Anggrek RSU Negara during 2022-2023. Data analysis to calculate the percentage of each pain level in elderly patients with immobilization. The tool used to measure pain was the numerical rating scale (NRS).* ***Results.*** *The number of elderly patients with immobilization history treated at Ruang Anggrek RSU Negara during 2022-2023 was 105 patients, most of whom were female (51.4%) and in the age group 60-69 years old (47.6%). The most frequent comorbidity was hypertension (20.0%) with myalgia (86.7%). Based on pain level, it was found that 67.6% had mild pain, 29.5% moderate pain, and 2.9% severe pain. Mild pain was more often accompanied by myalgia (91.55%). Severe pain was more often accompanied by arthralgia (66.67%) and with ≥2 comorbidities (66.67%).* ***Conclusions.*** *The pain level in elderly patients with immobilization history was mostly mild, most of them were female with comorbid hypertension accompanied by myalgia. This mild pain was related to the most common cause which was muscle pain (myalgia). Joint pain (arthralgia) tends to cause more severe pain. Hypertension tends to worsen the course of pain*

Introduction

The elderly are an age group whose numbers have increased due to the impact of successful health development related to increasing the life expectancy of the Indonesian population (Kemenkes, 2015). Geriatric syndrome is a collection of symptoms or health problems that are often experienced by geriatric patients (Inouye et al, 2007). Immobility in the elderly is a condition where elderly individuals have limitations in independence, certain physical body movements, or the movement of 1 or more lower limbs. The main causes of immobilization are weakness, muscle stiffness, pain, imbalance and psychological problems. Pain, whether from bones (osteoporosis, osteomalacia, bone cancer metastases or trauma), from joints (osteoarthritis, rheumatoid arthritis or gouty arthritis), from muscles (polymyalgia) or from leg problems can cause immobilization (Kane et al, 2013).

Mobilization disorders are a condition where movement is limited in the function of one or more of the body's extremities. Impaired mobility affects independence because the elderly become dependent on carrying out daily activities that the elderly should still be able to do. Impaired mobility not only changes the physical independence of the elderly, but psychological responses also change. The state of immobility in old age can cause muscle stiffness, pain and

PROFESIONAL HEALTH JOURNAL
Volume 6, No. 1, December 2024 (Page. 188-195)
Available Online at https://www.ojsstikesbanyuwangi.com/index.php/PHJ/index
E-ISSN 2715-6249
DOI: https://doi.org/10.54832/phj.v6i1.697

balance problems when moving for elderly patients and subsequently impact the patient's quality of life (Yan et al, 2019).

Persistent pain can compromise the interaction of the patient's mind, body, spirit and social status resulting in disability, financial problems, feelings of hopelessness and medical fragility. The consequences of persistent pain include depression, anxiety, decreased socialization abilities, sleep disturbances, decreased or impaired activity, extended recovery period, increased use of health resources, premature death, and increased health costs which are often found in elderly patients with pain. Pain that is not handled properly can also cause posture disorders and appetite disorders. Elderly patients with persistent pain are unable to be active in self-care or activities for health promotion (Meinier & Yeager, 2019). This study was motivated by the high prevalence of geriatric syndromes and immobilization among the elderly population in Indonesia, where immobility is caused by various factors such as pain, weakness, and psychological problems, which significantly impact negatively on the quality of life of the elderly. This study aims to investigate pain as a causative factor and seek potential solutions through improved pain management of the elderly with immobilization problems.

Methods

The research design is a descriptive study with a retrospective approach, namely examining the medical records of elderly patients with a history of immobilization who were treated at RSU Negara from 2022 to 2023. This study used a non-probability sampling method with a saturated sample technique / census sample where all members of the population were included in the sample, which means that all elderly patients who met the criteria were included.

Inclusion criteria include: age 60 years and over, have a history of immobility (not actively moving or bed rest for ≥3 days), hospitalized in the Anggrek Room of RSU Negara in 2022 to 2023, have complete medical record data. This study did not use exclusion criteria.

For data collection, a data observation sheet was used which contained information: patient demographics, pain scale, comorbidities, musculoskeletal disorders, and treatment history. Pain scores were measured using the Numeric Ranting Scale (NRS). Data analysis was performed descriptively by calculating the percentage of each variable..

Results

This research was conducted in Anggrek Room, Negara Hospital. The number of samples in this study were 105 respondents with the sampling technique using saturated samples, while the data analysis used univariate analysis.

Characteristics of Elderly Patients with a History of Immobilization

Table 1 Frequency Distribution of Characteristics of Elderly Patients at Ruang Anggrek RSU Negara

Variable		f	%	Variable		f	%
Age Group	60-69 years old	50	47.6	Comorbid	None	40	38.1
	70-79 years old	38	36.2		Hypertension	21	20.0
	≥80 years old	17	16.2		Diabetes	15	14.3
Gender	Male	51	48.6		Heart Disease	11	10.5

PROFESIONAL HEALTH JOURNAL
Volume 6, No. 1, December 2024 (Page. 188-195)
Available Online at https://www.ojsstikesbanyuwangi.com/index.php/PHJ/index
E-ISSN 2715-6249
DOI: https://doi.org/10.54832/phj.v6i1.697

	Female	54	51.4		Pulmonary Disease	9	8.6
	None	49	46.7		Kidney Disease	5	4.8
Occupation	Work outdoors	13	12.3		Liver Disease	1	1.0
	Work indoors	43	41.0		Stroke	1	1.0
	Osteoarthritis	2	1.9		Cancer	2	1.9
	Gout Arthritis	2	1.9		None	8	7.6
Musculoskeletal Disorder	Rheumatic	8	7.6	Analgesics	Paracetamol	90	85.7
	Fracture	2	1.9		Non Steroid	2	1.9
	Myalgia	91	86.7		Steroid	5	4.8

Based on table 1, it can be seen that, of the 105 elderly patients, based on age characteristics, the most age group is in the range (60-69 years), namely 50 patients (47.6%), female gender, namely 54 patients (51.4%). Based on occupation, most of them did not work, namely 49 patients (46.7%), musculoskeletal problems such as Myalgia 91 elderly (86.7%), cormobitic problems such as hypertension 21 elderly (20%), and the use of paracetamol as an analgesic as many as 90 patients (85.7%).

Overview of Pain Levels of Elderly Patients with a History of Immobilization

Table 2 Overview of Pain Levels of Elderly Patients with a History of Immobilization

	Variable	**f**	**%**
Pain Levels	1-3 (Mild Pain)	71	67.6
	4-6 (Moderate Pain)	31	29.5
	7-10 (Severe Pain)	3	2.9
	Total	**105**	**100.0**

Table 2 describes the description of the pain level of elderly patients with a history of immobilization, it was found that most of the elderly were at a mild level of pain with (scores 1-3), namely 71 patients (67.6%).

Discussion

Characteristics of Elderly Patients with a History of Immobilization

Based on Table 1, the results of the study of 105 elderly patients, obtained some interesting findings, namely, based on age characteristics, the largest age group in the range of 60-69 years, with a total of 50 patients (47.6%), gender, more women, namely 54 patients (51.4%), occupation, most patients do not work, namely 49 patients (46.7%), work indoors 43 patients (41%) and there are 13 patients (12. 3%) work outdoors, health problems, most of them have myalgia (joint pain) with a total of 49 patients (46.7%), 3%) worked outdoors, health problems, most experienced myalgia (joint pain) with a total of 49 patients (46. 7%), based on comorbidities, most had hypertension, namely 21 patients (20%), diabetes 15 patients (14.3%) and without comorbidities 40 patients (38.1%), and for the use of analgesics, paracetamol was the most commonly used analgesic, as many as 90 patients (85.7%).

Based on the age characteristics in Table 1, it was found that the elderly with a history of immobilization were in the age range of 60-69 years, a total of 50 patients (47.6%). This is consistent with research (Rachmawati *et al.*, 2006) which found that the highest age of elderly

PROFESIONAL HEALTH JOURNAL
Volume 6, No. 1, December 2024 (Page. 188-195)
Available Online at https://www.ojsstikesbanyuwangi.com/index.php/PHJ/index
E-ISSN 2715-6249
DOI: https://doi.org/10.54832/phj.v6i1.697

patients was 60 years. This age generally marks the beginning of the process of degeneration and decline in physical function (musculoskeletal) in the elderly, making them more susceptible to immobilization.

Based on the gender characteristics in Table 1, there were more women than men with a history of immobilization, 54 patients (51.4%). In line with research by (Pany & Boy, 2020), although it is not known for certain, women are more sensitive to pain in immobilization disorders. Several factors, such as hormonal conditions, where women have lower levels of the hormone estrogen after the menopause, which can cause osteoporosis and weaken the bones. This can increase the risk of falls and injuries, which can lead to immobilization. Lifestyle, women tend to do more housework and childcare, which can strain joints and increase the risk of injury; psychosocial conditions, women may be more prone to depression and anxiety, which can lead to physical inactivity and increase the risk of immobilization.

Based on the employment characteristics in the table, the results showed that of the 15 elderly patients, most did not work, namely 49 patients (46.7%), 43 patients (41.0%) worked indoors and the remaining 13 patients (12.3%) worked outdoors. The results of this study are similar to the results of the research by (Rachmawati *et al.*, 2006), the employment status of the elderly is mostly domestic work 62.7% and indoor work 12.4%. This is in line with research by Suleiman I, 2018, that elderly people with a history of heavy physical work have a higher risk of falling than elderly people with a history of non-strenuous work. Vulnerable types of work include those working as self-employed, irregular/unpaid workers and family workers. Older people in precarious employment are at high risk of economic vulnerability. Work history may influence the risk and severity of pain in immobile elderly people. This shows that older people with a history of heavy physical work have a higher risk of musculoskeletal pain and falls than older people with a history of non-strenuous work.

The characteristics of musculoskeletal problems and comorbidities in Table 1 show that myalgia (muscle pain) was the most common problem, occurring in 91 patients (86.7%) out of 105. Hypertension was the most common comorbidity in 21 patients (20%), followed by diabetes in 15 patients (14.3%) and heart disease in 11 patients (10.5%). The prevalence of diseases in the elderly increases with age because their susceptibility to disease also increases. The most common diseases in older people are degenerative or non-communicable diseases, often caused by age-related factors, such as heart disease, diabetes mellitus, stroke, rheumatism and injuries (Kemenkes RI, 2022). Immobilization in the elderly can increase the risk of comorbid conditions that can worsen their health.

Based on the characteristics of analgesic therapy in Table 1, out of 105 patients, 90 patients (85.7%) used paracetamol-type analgesics, paracetamol (acetaminophen) is known to be a safe and effective analgesic for pain relief in immobilized elderly people. However, it should be noted that the use of paracetamol should be closely monitored to reduce the risk of liver damage, and the use of acetaminophen in cases of chronic pain in the elderly should be limited to 2000 mg/day (Barus, 2015).

Based on the results of the study characteristics in Table 1, it can be seen that education and early intervention in the elderly, especially in the 60-69 age group, is important to prevent immobilization and related complications. Promotive and preventive measures such as early detection of chronic diseases, education on healthy lifestyles and exercise programs need to be promoted to maintain the health of older people and minimize the risk of immobilization. This study provides a clear picture of the impact of immobilization in older people and the factors

PROFESIONAL HEALTH JOURNAL
Volume 6, No. 1, December 2024 (Page. 188-195)
Available Online at https://www.ojsstikesbanyuwangi.com/index.php/PHJ/index
E-ISSN 2715-6249
DOI: https://doi.org/10.54832/phj.v6i1.697

that influence it. The findings can be used to develop more effective prevention and intervention strategies to improve the quality of life of older adults.

Overview of Pain Levels of Elderly Patients with a History of Immobilization

Based on the results of the study in Table 2 regarding the description of the pain level of elderly patients with immobilization, the results of 105 elderly patients, 71 patients (67.6%) experienced mild pain with a pain scale (1-3) and 31 elderly (29.5%) experienced moderate pain with a pain scale (4-6) and there were 3 patients (2.9%) experienced severe pain with a pain scale (7-10).

Elderly is defined as 60 years and older (Nugroho, 2008; Badan Pusat Statistik, 2021). The elderly has an immune system that tends to be more vulnerable due to the ageing process. This can make the elderly more susceptible to infections and diseases (Direktorat Statistik Kesejahteraan Rakyat, 2023). Immobility is one of the health problems often associated with age-related decline in system function, including sensory, musculoskeletal and neurological function. Immobility in the elderly not only causes muscle stiffness and imbalance during movement, but also often causes pain in elderly patients (Yan et al, 2019).

Pain is a multidimensional, complex and unpleasant experience caused by tissue damage, resulting from nociceptive and neuropathic signals, predicted to cause physiological harm, and influenced by psychosocial factors and the individual's past experiences. In people over the age of 60, the incidence of pain can increase significantly each decade. This is reflected in the prevalence of pain in older people, which ranges from 88.5% to 99.7% (Yan et al, 2019; Pany & Boy, 2020). Although acute pain occurs at similar rates in all age groups, chronic pain tends to increase with age, peaking at 65-70 years, stabilizing at 70-75 years and beginning to decline after 75 years (Pany & Boy, 2020).

The high incidence of pain in the elderly group is related to the degenerative process in the musculoskeletal system, where activities or work are generally still carried out, so that pain is more likely to be reported. In line with the results of this study, where based on age characteristics, it is in the age group of 60-79 years, namely 88 patients (83.8%) with pain problems in cases of immobilization for more than three months or called chronic pain. Acute pain occurs at the same rate in all age groups, whereas chronic pain generally increases with age, peaking in the 65-70 age group, remaining stable at 70-75 and decreasing after 75. Although it is not known with certainty, women are more sensitive than men to pain caused by hormonal, endogenous, exogenous, psychosocial factors and cognitive/affective variables (Rodriguez, 2001; Yan et al, 2019; Pany & Boy, 2020).

Pain originating from soft tissues, especially muscles, is most common compared to pain from bones and joints. Decreased flexibility in the elderly is due to the degeneration process in joints, connective tissue and bones, so that the elasticity of connective tissue and cartilage decreases. Decreased activity and exercise increase the risk of degeneration, erosion and calcification of cartilage and joint capsules (Setyorini & Setyaningrum, 2019). Common causes of pain in older people include fibromyalgia, neuropathic arthritis (diabetic, post-herpetic), osteoporosis and rheumatic polymyalgia. Muscle pain (without an inflammatory process) tends to be milder than pain due to joint inflammation or bone pain, and severe pain is caused by musculoskeletal disorders associated with an inflammatory process. Pain in inflammation or inflammatory processes occurs due to the stimulation of nociceptors by biochemical mediators, which are released through a series of immunological reactions and complement activation,

PROFESIONAL HEALTH JOURNAL
Volume 6, No. 1, December 2024 (Page. 188-195)
Available Online at https://www.ojsstikesbanyuwangi.com/index.php/PHJ/index
E-ISSN 2715-6249
DOI: https://doi.org/10.54832/phj.v6i1.697

ultimately releasing proteins / inflammatory mediators (cytokines, histamine, bradykinin) whose properties further damage the tissue, so the pain caused tends to be more severe (Setiyohadi et al, 2014).

In line with the results of this study, based on comorbidities that most often accompany elderly patients with immobilization are hypertension (20.0%) and diabetes (14.3%). Patients with ≥2 comorbidities were more likely to have severe pain (66.67%). Research by (Pinzon, 2015) on pain comorbidities in elderly patients showed that comorbidities were found in approximately 2/3 of elderly patients with pain, namely stomach disorders in 29.2%, hypertension in 8.3% and diabetes in 6.3%.

Comorbidities in older people affect the course of musculoskeletal pain conditions. Patients with osteoarthritis show that comorbidities affect pain intensity and lead to poor quality of life. Comorbidities affect the management of patients with musculoskeletal pain. Mortality is significantly higher in arthritis patients with cardiovascular comorbidities. Changes in physiological conditions and comorbidities in the elderly make pain management in this population more complex. Interactions between analgesics and other medications being taken can lead to side effects such as gastrointestinal disturbances and impaired renal function (Pinzon, 2015).

Based on the description above, the highest level of pain in the elderly is mild pain caused by muscle pain without tissue damage or inflammation. Treatment tends to use mild analgesics (paracetamol) because the intensity of muscle pain is low. In contrast, severe pain is more likely to be associated with joint or bone pain with inflammation or tissue damage. Patients with ≥2 comorbidities were more likely to be in the severe pain group, which is related to the comorbid condition itself, which is a chronic disease that can complicate the musculoskeletal system (peripheral nerve damage or neuropathy and vascular damage or angiopathy due to diabetes and hypertension). Poorly managed comorbidities affect the intensity of pain and the quality of life of older people.

Conclusion

The majority of elderly patients were female (51.4%) and aged between 60 and 69 years (47.6%). Most of them were not working (46.7%), but there were 13 people (12.3%) who were still actively working outside the home, such as farmers or fishermen. The most common comorbidities were hypertension (20.0%), diabetes (14.3%) and at least one other comorbidity (38.1%). In addition, the most common musculoskeletal disorder experienced by the elderly was muscle pain or myalgia (86.7%) and paracetamol was the most commonly used analgesic, used by 90 elderly people (85.7%).

The recommendation from this study is that people aged 60-69 years should engage in exercise or mobilisation to improve muscle flexibility, slow bone, muscle and joint degeneration, and prevent worsening of immobilisation-related effects. Appropriate management of co-morbid conditions is also very important in reducing musculoskeletal disorders and managing pain levels.

Further research is needed on the impact of comorbidities on exacerbation of mobilisation conditions or, conversely, the impact of immobilisation on exacerbation of comorbid conditions in older patients.

Ethics approval and consent to participate

This research was carried out by tracing medical record documents that had passed ethical clearance and had received permission from the authorized hospital and from the Jembrana district investment and one-stop service office.

PROFESIONAL HEALTH JOURNAL
Volume 6, No. 1, December 2024 (Page. 188-195)
Available Online at https://www.ojsstikesbanyuwangi.com/index.php/PHJ/index
E-ISSN 2715-6249
DOI: https://doi.org/10.54832/phj.v6i1.697

Acknowledgments

We would like to thank all parties who have helped collect data and prepare this article so that this manuscript can be completed.

References

Badan Pusat Statistik. (2023) 'Profil Statistik Kesehatan 2023', *Badan Pusat Statistik*, 7, pp. 6–8.

Barus, J. (2015) 'Continuing Medical Education: Penatalaksanaan Farmakologis Nyeri pada Lanjut Usia', 42(3), pp. 167–171.

Hanks-Bell, M., Halvey, K., & Paice, J.A. (2004). Pain Assessment and Management in Aging. *The Online Journal of Issues in Nursing*, 9(3). https://doi.org/10.3912/OJIN.Vol9No03PPT03

Inouye, S. K., Studenski, S., Tinetti, M. E., & Kuchel, G. A. (2007). Geriatric syndromes: Clinical, research, and policy implications of a core geriatric concept. *Journal of the American Geriatrics Society*, *55*(5), 780–791. https://doi.org/10.1111/j.1532-5415.2007.01156.x

Kane, R. L., Ouslander, J. G., Abrass, I. B., & Resnick, B. (2013). *Essentials of Clinical Geriatrics* (7th ed.). McGraw Hill.

Karp, J. F., Shega, J. W., Morone, N. E., & Weiner, D. K. (2008). Advances in understanding the mechanisms and management of persistent pain in older adults. *British Journal of Anaesthesia*, *101*(1), 111–120. https://doi.org/10.1093/bja/aen090

Kemenkes, R. (2015) *Penyelenggaraan Pelayanan Kesehatan Lanjut Usia di Pusat Kesehatan Masyarakat*, *Kementrian Kesehatan RI*.

Kemenkes RI (2022) *Profil Kesehatan Indonesia*, *Pusdatin. Kemenkes.Go.Id*. Available at: https://www.kemkes.go.id/downloads/resources/download/pusdatin/profil-kesehatan-indonesia/Profil-Kesehatan-2021.pdf.

Meinier, SE & Yeager, J. (2019) *Gerontologic Nursing*. 6th edn. Elsevier, Inc.

Nugroho, W. (2008) *Keperawatan Gerontik & Geriatrik*. 3rd edn. Jakarta: EGC.

Pany, M., & Boy, E. (2019). Literature Review Prevalensi Nyeri pada Lansia. *Magna Medica*, *6*(2), 138-145. Badan Pusat Statistik (2021) 'Statistik Penduduk Lanjut Usia 2021'. https://doi.org/10.26714/magnamed.6.2.2019.138-145

Pinzon, R. (2015) 'Komorbiditas Nyeri pada Pasien Lanjut Usia', *CDK-226-226*, 42(3), pp. 173–175. Available at: https://studylibid.com/doc/325181/komorbiditas-nyeri-pada-pasien-lanjut-usia#. https://doi.org/10.55175/cdk.v42i3.1028

PROFESIONAL HEALTH JOURNAL
Volume 6, No. 1, December 2024 (Page. 188-195)
Available Online at https://www.ojsstikesbanyuwangi.com/index.php/PHJ/index
E-ISSN 2715-6249
DOI: https://doi.org/10.54832/phj.v6i1.697

Rachmawati, M.R., Samara, D., Tjhin, P., & Wartono, M. (2006) 'Nyeri musculoskeletal dan hubungannya dengan kemampuan fungsional fisik pada lanjut usia', *Universa Medicina Oktober-Desember*, 25(4).

Rodriguez, C. S. (2001) 'Pain measurement in the elderly: A review', *Pain Management Nursing*, 2(2), pp. 38–46. https://doi.org/10.1053/jpmn.2001.23746

Setiyohadi, B., Sumariyono, Kasjmir, Y. I., Isbagio, H., & Kalim, H. (2014). *Buku Ajar Ilmu Penyakit Dalam* (S. Setiati, I. Alwi, A. W. Sudoyo, M. Simadibrata, B. Setiyohadi, & A. F. Syam, Eds.; 6th ed.). Interna Publishing.

Setyorini, A. & Setyaningrum, N. (2019) 'Pengaruh Latihan Range of Motion (Rom) Aktif Assitif Terhadap Rentang Gerak Sendi Pada Lansia Yang Mengalami Immobilisasi Fisik', *Surya Medika: Jurnal Ilmiah Ilmu Keperawatan dan Ilmu Kesehatan Masyarakat*, 13(2), pp. 77–84. doi: 10.32504/sm.v13i2.116.

Yan, L. S., Octavia, D., & Suweno, W. (2019) 'Pengalaman Jatuh dan Kejadian Imobilitas Pada Kelompok Lanjut Usia', *Jurnal Endurance : Kajian Ilmiah Problema Kesehatan*, 4, pp. 151–158. Available at: http://www.mendeley.com/research/ddce0211-8fb5-3d76-b446-7e647469ce89/.https://doi.org/10.22216/jen.v4i1.3430