Original Article

"Exploring the Impact of Pain on Functional Capacity and Quality of Life in Elderly with Musculoskeletal Disorders"

Ika Rosdiana[1], Retno Setianing[2], Niken Astuti[3], Dewi Kusuma Hartono[4], Tanti Ajoe Kesoema[5], Novita Sari Dewi[6], Sarah Jehan Suhastika[7], Novita Fadlia[8], Lisa Nurkhasanah[9], Ardina Nur Pramudita[1]

[1]Department of Physical Medicine and Rehabilitation, Faculty of Medicine Universitas Islam Sultan Agung, Sultan Agung Islamic Hospital Semarang, Indonesia
[2]Department of Physical Medicine and Rehabilitation, Orthopedic Hospital Dr Soeharso Surakarta, Indonesia
[3]Department of Physical Medicine and Rehabilitation, St Elisabeth Hospital Semarang, Indonesia
[4]Department of Physical Medicine and Rehabilitation, General Hospital Adhiyatma MPH Semarang, Indonesia
[5]Department of Physical Medicine and Rehabilitation, Faculty of Medicine Universitas Diponegoro, Nasional Diponegoro Hospital Semarang, Indonesia
[6]Department of Physical Medicine and Rehabilitation, Faculty of Medicine Universitas Muhamadiyah Semarang, Roemani Hospital Semarang, Indonesia
[7]Department of Physical Medicine and Rehabilitation, PKU Muhammadiyah Jatinom, Klaten, Indonesia
[8]Department of Physical Medicine and Rehabilitation, Tidar General Hospital Magelang, Universitas Ahmad Dahlan Hospital Magelang, Indonesia
[9]Department of Physical Medicine and Rehabilitation, Bhakti Wiratamtama Hospital Semarang, Indonesia

ABSTRACT

Introduction: Pain is a common health issue among the elderly, with chronic pain significantly impacting functional capacity and quality of life. This study analyzes the relationship between pain, functional capacity, and quality of life in elderly individuals using the Barthel Index and WHOQOL-BREF.

Methods: This analytical observational study utilized a cross-sectional design involving 204 elderly individuals with musculoskeletal pain from 10 hospitals in Central Java. Pain levels were assessed using the Numerical Rating Scale (NRS), functional capacity was measured using the Barthel Index, and quality of life was evaluated using WHOQOL-BREF. Data were analyzed descriptively, and Spearman's correlation test was used to determine relationships between variables.

Results: The descriptive analysis revealed knee pain as the most commonly reported location (33.33%), followed by lower back pain (30.4%). Functional capacity assessment showed high independence in daily activities, with 99.0% eating and 96.6% bathing independently. However, only 74.0% could navigate stairs without assistance. Spearman's correlation analysis showed a significant negative correlation between pain and the Barthel Index ($r = -0.174$, $p = 0.013$), WHOQOL-BREF Domain 1 ($r = -0.319$, $p < 0.001$), and Domain 2 ($r = -0.185$, $p = 0.008$). No significant relationships were observed for Domains 3 and 4.

Conclusion: Pain significantly impacts functional capacity and psychological well-being in elderly individuals, but its effect on social and environmental quality of life is less pronounced. Comprehensive pain assessment and targeted interventions are essential to improve their quality of life.

Keywords: Pain, functional capacity, quality of life, Barthel Index

ABSTRAK

Pendahuluan: Nyeri merupakan masalah kesehatan umum pada lansia, di mana nyeri kronis berdampak signifikan terhadap kapasitas fungsional dan kualitas hidup. Penelitian ini menganalisis hubungan antara nyeri, kapasitas fungsional, dan kualitas hidup pada lansia menggunakan Indeks Barthel dan WHOQOL-BREF.

Metode: Penelitian observasional analitik ini menggunakan desain potong lintang dan melibatkan 204 lansia dengan nyeri muskuloskeletal dari 10 rumah sakit di Jawa Tengah. Tingkat nyeri dinilai menggunakan Numerical Rating Scale (NRS), kapasitas fungsional diukur menggunakan Indeks Barthel, dan kualitas hidup dievaluasi menggunakan WHOQOL-BREF. Data dianalisis secara deskriptif, dan uji korelasi Spearman digunakan untuk menentukan hubungan antar variabel.

Hasil: Analisis deskriptif menunjukkan nyeri lutut sebagai lokasi nyeri yang paling sering dilaporkan (33,33%), diikuti nyeri punggung bawah (30,4%). Penilaian kapasitas fungsional menunjukkan tingkat kemandirian yang tinggi dalam aktivitas sehari-hari, dengan 99,0% makan dan 96,6% mandi secara mandiri. Namun, hanya 74,0% yang dapat menaiki tangga tanpa bantuan. Uji korelasi Spearman menunjukkan hubungan negatif signifikan antara nyeri dengan Indeks Barthel ($r = -0,174$, $p = 0,013$), WHOQOL-BREF Domain 1 ($r = -0,319$, $p < 0,001$), dan Domain 2 ($r = -0,185$, $p = 0,008$). Tidak ditemukan hubungan signifikan pada Domain 3 dan 4.

Kesimpulan: Nyeri berdampak signifikan pada kapasitas fungsional dan kesejahteraan psikologis lansia, namun pengaruhnya terhadap kualitas hidup sosial dan lingkungan kurang menonjol. Penilaian nyeri yang komprehensif dan intervensi yang terarah sangat penting untuk meningkatkan kualitas hidup mereka.

Kata Kunci: Nyeri, kapasitas fungsional, kualitas hidup, Indeks Barthel.

Correspondence Detail:
Ika Rosdiana
Department of Physical Medicine and Rehabilitation, Faculty of Medicine Universitas Islam Sultan Agung, Sultan Agung Islamic Hospital Semarang, Indonesia
Email: ikadrkfr@unissula.ac.id

INTRODUCTION

Pain is a common health issue among the elderly, with a high prevalence worldwide. Over the past few decades, the global elderly population has increased significantly, and one of its major negative impacts is chronic pain, which poses a significant challenge today. The primary complaints of pain in the elderly are often associated with neurodegenerative and musculoskeletal conditions, peripheral vascular diseases, arthritis, osteoarthritis,

social isolation, impaired physical activity, and dependency in performing daily activities. These conditions significantly contribute to a diminished quality of life. Chronic pain is defined as "pain that persists or recurs for more than three months" and is classified as primary pain (such as fibromyalgia) when the pain arises as a condition in itself or as secondary pain when it is associated with an underlying disease.[1]

The prevalence of pain in the elderly is significant. Previous studies have shown that the prevalence of chronic pain among community-dwelling elderly individuals ranges from 25% to 76%. This rate is even higher among elderly individuals residing in long-term care facilities, ranging from 83% to 93%. The most commonly reported pain locations include the back, lower limbs (such as the knee or hip), and other joints. Chronic pain in the elderly has serious consequences, including an increased risk of depression, anxiety, immobility, and rising healthcare costs.[2]

The negative impact of pain on the functional capacity of the elderly is profound. Pain can limit mobility, contribute to the overall decline in physical and mental performance, and lead to complications such as injuries from falls. Chronic pain is often exacerbated by the accumulation of multiple pain-inducing conditions, resulting not only in physical suffering but also in emotional and psychosocial responses.[3] Untreated pain is a common issue among nursing home residents and is associated with comorbidities, limitations in Instrumental Activities of Daily Living (IADL), emotional or behavioral problems, and diminished health-related quality of life. Elderly individuals often face challenges in self-reporting pain due to difficulties in articulating their experiences, even with simple tools such as a 5-point verbal rating scale. Therefore, greater attention and enhanced efforts are required to improve pain assessment and management in this vulnerable population.[4]

The negative impact of pain on the quality of life (QoL) of the elderly is significant. This study demonstrates that chronic pain adversely affects the quality of life of the elderly population, particularly by impairing their function and autonomy.[5] Previous research has shown that chronic pain is common among vulnerable elderly individuals receiving primary care, with the most frequent pain locations being the lower back, knees, and lower limbs. Various pain characteristics can influence different dimensions of QoL, especially when considering sociodemographic factors, functional status, and social networks. For vulnerable elderly individuals, a comprehensive pain assessment is essential to understand its impact on QoL better. Such evaluations are valuable for tailoring individualized care and rehabilitation strategies, as well as for designing group-specific interventions.[6]

The relationship between pain, functional capacity, and quality of life in the elderly remains unclear. Chronic pain is more frequently experienced by elderly individuals with disabilities in basic or complex daily activities, cognitive function limitations, and increased levels of depression. In managing elderly patients, it is essential to assess the history of chronic pain for every individual, monitor pain intensity and its accompanying characteristics, and utilize multidimensional scales to evaluate pain comprehensively in this population.[3] Further research is needed to understand this relationship better, enabling the development of effective interventions to support elderly individuals experiencing pain. Although pain becomes more common with advancing age, it is not a normal part of aging. Pain can lead to a significant decline in quality of life among geriatric patients and, in many cases,

restrict or even eliminate independence. There are critical barriers to achieving safe and effective pain management, including accurate assessment, the presence of multiple comorbidities, physiological changes, and polypharmacy. Healthcare practitioners can contribute to improved pain control by addressing these challenges, utilizing appropriate treatment modalities, and adopting a multidisciplinary approach to pain management.[7]

Combination interventions can support the elderly in managing pain, improving functional capacity, and enhancing their quality of life. A multimodal approach to therapy may be considered. Medications with complementary mechanisms of action can have synergistic effects, providing more effective pain relief with fewer side effects than high doses of a single medication. Priority should always be given to non-pharmacological strategies, such as physiotherapy, cognitive-behavioral approaches, transcutaneous electrical nerve stimulation, and acupuncture, to reduce or eliminate the need for medication.[8] Understanding the relationship between pain, functional capacity, and quality of life in the elderly can help develop more effective interventions to address pain and its associated challenges in this population.

This study aimed to analyze the relationship between musculoskeletal pain levels, functional capacity, and quality of life in an elderly population, using statistical methods to determine the strength and direction of the relationship.

METHODS

This study used an analytic observational design with a cross-sectional approach to evaluate the relationship between musculoskeletal pain, functional capacity, and quality of life in the elderly. The study population was the elderly in Semarang, Central Java, with a sample size of 204 elderly participants who experienced musculoskeletal pain recruited from 10 hospitals in Central Java. Data were collected using the Numerical Rating Scale (NRS) questionnaire to assess pain levels, the Barthel Index questionnaire to measure functional capacity, and the WHOQOL-BREF questionnaire to evaluate quality of life. WHOQOL-BREF questionnaire to evaluate the quality of life. It consists of 26 questions divided into 4 domains. Physical Health (Domain 1) assesses physical health, including pain and discomfort, energy levels, sleep quality, and mobility. It also considers the ability to perform daily activities, dependence on medical aids, and capacity to work. Psychological Health (Domain 2) evaluates mental and emotional well-being, including self-esteem, body image, and appearance. It also assesses the presence of negative and positive feelings and cognitive functions such as memory and concentration. Social Relationships (Domain 3) focuses on interpersonal and social interactions, including personal relationships, social support, and sexual activity. It reflects the quality and satisfaction derived from social relationships. Environmental Health (Domain 4) examines external and contextual factors that affect quality of life, including financial resources, safety, accessibility of health care, housing, transportation, and opportunities for recreational activities. Statistical analysis began with descriptive statistics to summarize participant demographics, pain location, pain level (NRS), functional capacity (Barthel Index), and quality of life (WHOQOL-BREF) using frequencies, percentages, means, and standard deviations. The Kolmogorov-Smirnov test indicated a non-normal data distribution ($p < 0.05$), prompting using Spearman's rank correlation to examine the relationship between pain levels, functional capacity, and quality of life. The relationship was considered significant ($p < 0.05$) and categorized based on the strength of the correlation based on the r value. The results

of this study provide insight into the impact of pain on the functional capacity and quality of life of the elderly.

RESULTS

A total of 204 elderly subjects participated in this study, consisting of 150 women and 54 men. To provide a comprehensive understanding of the study population, a descriptive analysis was conducted to summarize the distribution of pain locations among participants. This analysis highlighted the prevalence and frequency of reported pain, providing important insights into the areas most commonly affected. The following table presents descriptive statistics to outline these patterns in detail.

Table 1. Descriptive of Pain Locations

Pain Location	Frequency	%
Cervical	10	4,9
Lower Back	62	30,4
Knee	68	33,33
Shoulder	17	8,33
Pain in More Than 2 Locations	47	23,03

This table presents the frequency and percentage of pain locations reported by participants. It shows the occurrence of pain in five categories: Cervical, Lower Back, Knee, Shoulder, and Pain in More Than 2 Locations. The frequency represents the number of individuals reporting pain in each specific area, while the percentage indicates the proportion of participants experiencing pain in each location relative to the total sample.

Based on the descriptive table regarding pain locations in the elderly, it can be concluded that knee pain is the most commonly reported location, with a frequency of 68 cases, accounting for 33.33% of the total respondents. Lower back pain follows closely, with 62 cases or 30.4%. Shoulder pain and pain in more than two locations were reported in 17 cases (8.33%) and 47 cases (23.03%), respectively. Lastly, cervical pain was the least reported, with only 10 cases representing 4.9% of the respondents

The analysis and observation of daily functional capacity using the Barthel Index in elderly individuals revealed that the majority demonstrated high independence in daily activities. Two hundred and two individuals (99.0%) could eat independently, and 197 (96.6%) could bathe without assistance. Grooming activities also showed a high level of independence, with 198 individuals (97.1%) performing these tasks independently, while 193 individuals (94.6%) dressing independently. Regarding bowel and bladder control, most elderly exhibited good management, with 200 individuals (98.0%) and 188 individuals (92.2%), respectively, maintaining control. Toilet use was carried out independently by 194 individuals (95.1%), and 191 individuals (93.6%) could transfer between positions without assistance. Mobility was also notably good, with 198 individuals (97.1%) walking independently, although only 151 individuals (74.0%) could navigate stairs without assistance. However, a small proportion of elderly individuals required help in certain aspects, indicating the need for further attention to improve their quality of life.

The normality test conducted using the Kolmogorov-Smirnov method for each variable yielded a p-value of <0.001 ($p < 0.05$), indicating that the data do not follow a normal distribution. Consequently, the relationship between the number of reported pain instances was analyzed using Spearman's rank correlation test.

Table 2. Descriptive of Barthel Index

Barthel Index	Frequency	%
Eating		
Requires assistance	2	1,0
Independent	202	99,0
Bathing		
Dependent on others	7	3,4
Independent	197	96,6
Grooming		
Requires assistance	6	2,9
Independent	198	97,1
Dressing		
Assisted	11	5,4
Independent	193	94,6
Bowel Movements		
Incontinence	1	0,5
Occasionally uncontrolled	3	1,5
Controlled	200	98,0
Urination		
Incontinence	1	0,5
Occasionally uncontrolled	15	92,2
Controlled	188	92,2
Toilet Use		
Dependent on others	4	2,0
Requires assistance	6	2,9
Independent	194	95,1
Transfer		
Requires major assistance	4	2,0
Requires minor assistance	9	4,4
Independent	191	93,6
Mobility		
Assisted walking	6	2,9
Independent	198	97,1
Stair Climbing		
Unable	5	2,5
Requires assistance	48	23,5
Independent	151	74,0

The Barthel Index is a widely used assessment tool to evaluate an individual's level of independence in daily activities. Table 2 presents the frequency and percentage of responses for each item in the index, which measures the ability to perform tasks such as eating, bathing, grooming, dressing, bowel movements, urination, toilet use, transfer, mobility, and stair climbing. Each activity is categorized based on the level of assistance required, ranging from independent, where no assistance is needed, to requires assistance, indicating partial help, and dependent on others, where full assistance is necessary. The table categorizes individuals based on their ability to perform these activities, providing insights into their functional independence.

Table 3. Descriptive Test for Barthel Index, WHOQOL-BREF, and Perceived Pain

Variable	Mean ± SD	Median (min – max)
Barthel Index	96,50 ± 7,43	100 (55 – 100)
WHOQOL-BREF		
Domain 1 Physical Health	57,11 ± 13,26	56 (31 – 94)
Domain 2 Psychological Health	63,52 ± 12,26	63 (31 – 94)
Domain 3 Social Relationships	60,60 ± 13,19	56 (31 – 100)
Domain 4 Environmental Health	63,05 ± 11,89	63 (38 – 94)
Perceived pain	4,76 ± 1,70	5 (1 – 9)

This table presents the mean ± standard deviation (SD) and median (min-max) values for the Barthel Index, WHOQOL-BREF, and Perceived Pain. The Barthel Index measures the level of functional independence, while the WHOQOL-BREF assesses quality of life across four domains: Physical Health, Psychological Health, Social Relationships, and Environmental Health. The perceived pain variable reports the pain intensity experienced by participants, with values ranging from 1 to 9. The table summarizes the central tendency and variability for each variable, providing a comprehensive view of the health and quality of life indicators in the study sample.

Table 4. Correlation Between the Number of Perceived Pain, Barthel Index and WHOQOL-BREF

Variable	Perceived Pain	
	p	r
Barthel Index	0,013*	-0,174
WHOQOL-BREF		
Domain 1 Physical Health	<0,001*	-0,319
Domain 2 Psychological Health	0,008*	-0,185
Domain 3 Social Relationships	0,419	0,057
Domain 4 Environmental Health	0,255	0,080

Note: * Significant ($p < 0.05$)
This table shows the relationship between Perceived Pain, the Barthel Index, and the WHOQOL-BREF domains. The p-value (denoted as p) indicates whether the relationship is statistically significant, with a value of $p < 0.05$ considered significant. The correlation coefficient (denoted as r) reflects the strength and direction of the relationship, with negative values indicating an inverse relationship.

Spearman's correlation test examining the relationship between the number of reported pain occurrences and the Barthel Index and WHOQOL-BREF domains yielded the following results. The Barthel Index shows a significant negative correlation with perceived pain ($p = 0.013$, $r = -0.174$), meaning that as the Barthel Index increases (improved independence), perceived pain decreases. Among the WHOQOL-BREF domains, Domain 1 (Physical Health) and Domain 2 (Psychological Health) show significant negative correlations with perceived pain ($p < 0.001$ and $p = 0.008$, respectively), suggesting that higher scores in these areas are associated with lower perceived pain. However, Domain 3 (Social Relationships) and Domain 4 (Environmental Health) do not show significant correlations with perceived pain ($p = 0.419$ and $p = 0.255$), indicating no clear relationship between these domains and the level of perceived pain. This analysis highlights the importance of physical and psychological health in managing perceived pain, while social and environmental factors appear to have less impact on pain perception.

DISCUSSION

The findings from this study are consistent with previous research that highlights the high incidence of musculoskeletal pain in older adults. For instance, a systematic review found that the prevalence of low back pain in elderly populations can range from 21% to 75%, underscoring its commonality in this demographic.[9] Additionally, previous research reported that chronic pain is prevalent among older adults and significantly impacts their functional capacity and quality of life, corroborating the findings of this research.[10] Moreover, the presence of pain in multiple locations, as observed in 23.03% of respondents, aligns with literature suggesting that older adults often experience pain in multiple sites, which can exacerbate disability and hinder daily activities.[1,11] This multifaceted pain experience can lead to increased social isolation and decreased physical activity, compromising quality of life.[1] These findings have profound implications; they suggest that effective pain management strategies are essential for improving functional capacity and overall well-being in elderly populations. Future research should focus on developing targeted interventions to manage pain effectively, thereby enhancing the quality of life for older adults who suffer from chronic pain conditions.

Assessing functional capacity in the elderly is vital for understanding their independence and quality of life. This study utilized the Barthel Index to evaluate daily functional capacity, revealing that most elderly participants exhibited high levels of independence in performing activities of

daily living (ADLs). Specifically, 99.0% of respondents could eat independently, and 96.6% could bathe without assistance. These findings are consistent with recent literature emphasizing the importance of maintaining functional independence in older adults. Previous research found that higher Barthel scores correlate with better self-reported health status and lower levels of disability among seniors, underscoring the relevance of assessing daily living activities for evaluating functional capacity.[12] Moreover, the study revealed that 97.1% of participants could perform grooming independently, while 94.6% could dress without help. These high levels of autonomy align with findings from other studies indicating that many elderly individuals retain significant abilities to manage personal care tasks as they age.[12] However, while most participants exhibited independence in basic ADLs, a small proportion still required assistance for certain tasks, particularly in mobility and stair navigation, where only 74.0% could manage independently. This highlights the need for targeted interventions to enhance mobility and reduce dependency in older adults.

The implications of these results are profound; they suggest that while many elderly individuals maintain a high level of functional capacity, there remains a subset that may benefit from targeted interventions to enhance their independence. Research indicates that interventions focusing on physical activity can significantly improve functional outcomes for older adults, thereby reducing dependency and enhancing quality of life.[13] Furthermore, addressing factors such as pain management and mental health is essential, as studies have shown that pain can negatively impact functional capacity and overall well-being in older populations. In conclusion, this research underscores the importance of regular assessments using tools like the Barthel Index to monitor functional capacity in the elderly. Such evaluations can inform healthcare providers about the need for interventions that promote independence and enhance the quality of life for older adults. Continuous monitoring and support are essential to ensure that all elderly individuals can achieve optimal functional capacity and maintain their independence as they age.

The relationship between pain and functional capacity in the elderly is an important area of study, particularly regarding its impact on daily activities as measured by the Barthel Index and quality of life as assessed by the WHOQOL-BREF. In this research, the Spearman's Correlation test indicated a significant negative correlation between pain levels and the Barthel Index ($p = 0.013$; $r = -0.174$), suggesting increased pain is associated with decreased functional capacity. This finding is consistent with existing literature that highlights how chronic pain can impair the ability of older adults to perform activities of daily living (ADLs) effectively.

Recent studies have shown that pain significantly affects various aspects of life for older adults. Previous research found a strong correlation between knee pain and quality of life in elderly patients, emphasizing that higher pain levels corresponded with lower quality of life scores. This aligns with our findings, as both studies utilize similar methodologies to assess the impact of pain on functional capacity and quality of life. The negative correlation observed in our study indicates that even mild pain levels can hinder an elderly individual's ability to maintain independence in daily activities.[14] Furthermore, the WHOQOL-BREF assesses multiple domains of quality of life, including physical health, psychological well-being, and social relationships. Research has shown that chronic pain not only affects physical functioning but also has psychological implications, leading to increased feelings of depression and anxiety among older adults. Addressing pain management through comprehensive

treatment plans that include physical therapy, medication, and psychological support is crucial for improving both functional capacity and overall quality of life.[15]

The findings in this study showed a statistically significant but very weak negative correlation between perceived pain and psychological well-being (WHOQOL-BREF Domain 2) in older adults, with a p-value of 0.008 and an r-value of -0.185. This suggests that as perceived pain increases, psychological well-being decreases slightly. This observation is in line with previous research that emphasizes the detrimental impact of pain on psychological health among older adults. In previous research evaluated the psychometric properties of the WHOQOL-BREF in a sample of senior citizens and found that chronic pain adversely affects the psychological domain, leading to increased anxiety and depression.[16] Similarly, previous research reported that elderly patients undergoing total hip arthroplasty experienced a significant improvement in psychological well-being following a pain management intervention, highlighting the close relationship between pain levels and psychological health.[17]

In contrast, this study found no significant relationship between perceived pain and social relationships (Domain 3) and environmental factors (Domain 4), with p-values of 0.419 and 0.255, respectively. This is in contrast to several previous studies that have shown that pain can negatively affect social interactions and environmental satisfaction in older adults. Previous studies assessing elderly patients with osteoarthritis reported that chronic pain adversely affects social relationships, leading to social isolation and decreased participation in community activities.[18]

The discrepancy between the findings in this study and previous studies may be due to differences in sample characteristics, type of pain, or local wisdom. It is also possible that elderly individuals develop coping mechanisms that reduce the impact of pain on the social and environmental aspects of life, thus reducing the correlations observed in these domains. As in a previous study observing the effect of programmed surgery on pain, it was found that elderly patients undergoing total hip arthroplasty showed significant improvements in social relationships and environmental quality after the intervention, indicating that a supportive environment can reduce the negative impact of pain.[17] In addition, the psychometric properties of the WHOQOL-BREF, particularly the social domain, have been questioned in some studies due to lower reliability values, which may affect the detection of significant relationships, In this study, data was collected through structured interviews using the WHOQOL-BREF (PT) instrument, which consists of four domains: Physical Health, Psychological Health, Social Relationships, and Environment, as well as one general indicator of quality of life. Overall, however, the WHOQOL-BREF (PT) proved to be a valid and reliable instrument for assessing the quality of life of older adults in rural areas. However, due to the high interconnectedness between domains, further research is needed to validate the weighted average calculation strategy and assess its impact on the interpretation of overall quality of life results.[16]

In addition, the sensitivity of WHOQOL-BREF measures in these domains may not fully capture the nuanced effects of pain on social and environmental aspects of life in older adults. The limited number of instrument items in these domains may lead to underestimating the true relationship between pain and quality of life. Further research using

comprehensive assessment tools is needed to explore these dynamics in depth and further explore factors that may reduce the influence of pain on various quality-of-life domains in older adults.

CONCLUSION

The study highlights that knee and lower back pain are prevalent issues among the elderly, although most maintain a high level of functional independence, particularly in basic activities like eating and bathing. However, challenges remain in more complex tasks such as stair climbing. Pain was found to negatively affect both physical function and quality of life, particularly in the first two domains of well-being.

These findings underscore the need for targeted interventions that focus on effective pain management to enhance the overall quality of life for the elderly. Additionally, the study's limited socio-economic diversity and potential confounding factors, such as comorbidities, suggest that further research is needed to confirm these results in a broader and more diverse population.

ACKNOWLEDGMENT

Particularly addressed to 1) the Dean of Faculty of Medicine Unissula who has provided support and review in obtaining the main ethical clearance, 2) Chairman of Sultan Agung Islamic Hospital Semarang, Head of Hospital Dr. Soeharso Surakarta, Chairman of St Elisabeth Hospital Semarang, Head of General Hospital Adhiyatma MPH Semarang, National Chairman of Diponegoro Hospital Semarang, Head of Roemani Hospital Semarang, Head of Tidar General Hospital Magelang and Universitas Ahmad Dahlan Hospital Magelang, Head of PKU Muhammadiyah Jatinom Klaten, Head of Bhakti Wiratamtama Hospital Semarang, 3) Elderly respondents who have contributed to conducting interviews and are willing to support the implementation of this research, 4) the Chairman of Perdosri Jateng and DIY who has provided support during this research.

REFERENCES

1. Dagnino APA, Campos MM. Chronic Pain in the Elderly: Mechanisms and Perspectives. Front Hum Neurosci. 2022;16(March):1–15.
2. Chan HKI, Chan CPI. Managing chronic pain in older people. Clin Med J R Coll Physicians London. 2022;22(4):292–4.
3. Puto G, Repka I, Muszalik M. Factors Correlating with Functional Capacity in Older People with Chronic Pain. Int J Environ Res Public Health. 2023;20(3).
4. Wu SH, Lin CF, Lu IC, Yeh MS, Hsu CC, Yang YH. Association between pain and cognitive and daily functional impairment in older institutional residents: a cross-sectional study. BMC Geriatr [Internet]. 2023;23(1):1–10. Available from: https://doi.org/10.1186/s12877-023-04337-8
5. Lemos B de O, Cunha AMR da, Cesarino CB, Martins MRI. The impact of chronic pain on functionality and quality of life of the elderly. Brazilian J Pain. 2019;2(3):237–41.
6. Johansson MM, Barbero M, Peolsson A, Falla D, Cescon C, Folli A, et al. Pain characteristics and quality of life in older people at high risk of future hospitalization. Int J Environ Res Public Health. 2021;18(3):1–12.
7. Borsheski R, Johnson QL. Pain management in the geriatric population. Mo Med. 2014;111(6):508–11.

8. Schofield P, Dunham M, Martin D, Bellamy G, Francis SA, Sookhoo D, et al. Evidence-based clinical practice guidelines on the management of pain in older people – a summary report. Br J Pain. 2022;16(1):6–13.
2. de Souza IMB, Sakaguchi TF, Yuan SLK, Matsutani LA, Do Espírito-Santo A de S, Pereira CA de B, et al. Prevalence of low back pain in the elderly population: A systematic review. Clinics. 2019;74.
3. Satghare P, Chong SA, Vaingankar J, Picco L, Abdin E, Chua BY, et al. Prevalence and correlates of pain in people aged 60 years and above in Singapore: Results from the wise study. Pain Res Manag. 2016;2016.
4. Patel K V., Guralnik JM, Dansie EJ, Turk DC. Prevalence and impact of pain among older adults in the United States: Findings from the 2011 National Health and Aging Trends Study. Pain. 2013;154(12):2649–57.
5. Wróblewska Z, Chmielewski JP, Florek-łuszczki M, Nowak-Starz G, Wojciechowska M, Wróblewska IM. Assessmentof functional capacity of the elderly. Ann Agric Environ Med. 2023;30(1):156–63.
6. Mastela GC, Galiano J de C, Garcia LCT, Arbex MCFB, Lemos N de FD, Santos FC. Chronic pain among older adults and its impact on satisfaction with social participation: development and validation of the "Instrument to Assess Older Adults' Social Participation". A descriptive quantitative study. Sao Paulo Med J. 2024;142(2):1–9.
7. Melati AN, Nugraheni N, Djuari L, Yulianti E, Romadhon PZ. Knee Pain and Quality of Life among the Elderly. Curr Intern Med Res Pract Surabaya J. 2024;5(2):68–73.
8. Resnick B, Boltz M, Galik E, Holmes S, Vigne E, Fix S, et al. Pain Assessment, Management, and Impact Among Older Adults in Assisted Living. Pain Manag Nurs. 2019;20(3):192–7.
9. Goes M, Lopes M, Marôco J, Oliveira H, Fonseca C. Psychometric properties of the WHOQOL-BREF(PT) in a sample of elderly citizens. Health Qual Life Outcomes [Internet]. 2021;19(1):1–12. Available from: https://doi.org/10.1186/s12955-021-01783-z
10. Du D, Li H, Xu Y, Zheng T, Xu X, Wang J, et al. Study on the Effect of Pain Programmed Care Based on the Concept of Prehabilitation on the Recovery of Joint Function and WHOQOL-BREF Score in Elderly Patients after Total Hip Arthroplasty. Altern Ther Health Med. 2023;29(8):618–23.
11. Mezey GA, Paulik E, Máté Z. Effect of osteoarthritis and its surgical treatment on patients' quality of life: a longitudinal study. BMC Musculoskelet Disord [Internet]. 2023;24(1):1–10. Available from: https://doi.org/10.1186/s12891-023-06662-w.