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Research Article

Overview of Daily Living Activities in Patients with Osteoarthritis

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Abstract. Osteoarthritis is a degenerative joint disease that causes cartilage damage, pain, stiffness, and decreased joint function, which can impair patients' ability to perform Activities of Daily Living (ADL). Limitations in ADL reduce independence and quality of life, particularly among elderly patients. This study aimed to describe the level of ADL independence in patients with osteoarthritis at Sultan Agung Islamic Hospital, Semarang. A categorical descriptive study with a cross-sectional approach was conducted involving 98 respondents selected through stratified random sampling. Data were collected using a modified Barthel Index and analyzed descriptively to determine the distribution of dependency levels. The findings showed that most patients experienced mild dependency, followed by moderate dependency, while only a small proportion were fully independent. The activities most frequently affected were mobility, walking, and stair climbing. These results indicate that osteoarthritis significantly affects functional ability in daily activities. The findings are expected to provide evidence-based information for nursing practice, particularly in planning rehabilitative and supportive interventions aimed at improving functional independence and quality of life in patients with osteoarthritis.

Keywords: Activities of Daily Living; Barthel Index; Independence; Elderly; Osteoarthritis

1. INTRODUCTION

Osteoarthritis is the most common degenerative joint disease, especially in the elderly, and is characterized by cartilage damage, osteophyte formation, pain, joint stiffness, and decreased joint function (Ismunandar, I., Sari & Prablowo, 2020; M. Kloppelnblurg & Blörelnblaum, 2020) . The degenerative process that occurs with increasing age causes the joints to lose elasticity and the ability to support the bones, so that osteoarthritis often attacks the joints that support the bones and bones such as the knees, hips, and spine (Ariyanti et al., 2021) . This condition has a direct impact on the patient's functional ability to carry out daily activities.

Globally, the prevalence of osteoarthritis continues to increase and is becoming one of the leading causes of disability in the elderly. *The Global Burden of Disease Study* reported a more than twofold increase in osteoarthritis cases in the last three decades, with a higher prevalence in women compared to men (Global Burden of Disease, 2020; Oktaria et al., 2022) . In Indonesia, joint disease is reported to have a relatively high prevalence, and osteoarthritis is the most common type, especially in those over 55 years of age (WHO, 2021) . In Central Java, the prevalence of osteoarthritis diagnosed by doctors also shows a significant number and tends to increase with increasing age (BLPSI, 2023) .

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Chronic pain, limited range of motion of the joints, and muscle weakness due to osteoarthritis can result in a decrease in the patient's ability to perform *Activities of Daily Living* (ADL), such as walking, moving, going up and down stairs, bathing, dressing, and other self-care activities (Delwanti & Rahmawati, 2022). Decreased ADL ability results in increased patient dependence on others, decreased quality of life, and increased risk of falls and disability, especially in the elderly (Widyasari et al., 2022) .

Various previous studies have focused on the effectiveness of pharmacological therapy and physical exercise in reducing pain and improving joint function in osteoarthritis patients (Hellmi et al., 2021) . However, studies that specifically describe the level of *Activity Daily Living independence* in osteoarthritis patients as a whole, especially in the context of local health services, are still lacking (Ummah, 2023) . In fact, ADL description is very important as a basis for planning nursing care and rehabilitation intelligence that is oriented towards patient independence (Hidayana et al., 2024) .

Based on the condition of the patient, this study has an urgency to describe the level *of Activity Daily Living* in osteoarthritis patients at Sultan Agung Selmarang Islamic Hospital. The results of the study are expected to provide an objective picture of the patient's level of independence, become the basis for developing appropriate nursing intelligence, and contribute to improving the quality of nursing services for osteoarthritis patients.

2. THEORETICAL STUDY

Osteoarthritis is a chronic degenerative joint disease characterized by cartilage damage, osteophyte formation, pain, and decreased joint function that impacts the patient's functional activity (Ismunandar, I., Sari & Prablowo, 2020) . This degenerative process is influenced by factors such as age, gender, obesity, physical activity, and joint biomelchanical changes, which cause osteoarthritis to most often affect the joints that support the bones, especially the knees (Aliya, 2020; M. Kloppelnblurg & Blörelnblaum, 2020) .

Epidemiologically, osteoarthritis is one of the leading causes of disability in the elderly. *The Global Burden of Disease Study* reported a significant increase in osteoarthritis cases globally, with the knee joint being the most affected site (Global Burden of Disease, 2020) . In Indonesia, osteoarthritis is the most common joint disease, with prevalence increasing with age and being more common in women (WHO, 2021) . This indicates that osteoarthritis is a health problem that has significant implications for patient independence and quality of life.

Activity Daily Living (ADL) is a basic self-care activity that reflects an individual's ability to live their daily lives independently, including mobility, transferring, eating, bathing, dressing, and using the toilet (Hardiningsih, 2021; Yuswatiningsih & Suhariati, 2021) . In nursing, the ability to perform ADL is an important indicator for assessing the patient's level of dependency and planning appropriate nursing care (Mckelnna, 2023) .

Chronic pain, limited range of motion, and muscle weakness due to osteoarthritis can reduce the patient's ability to perform ADLs, especially walking, climbing stairs, and mobility (Delwanti & Rahmawati, 2022) . Decreased ADL ability can increase dependency, the risk of falls, and reduce the patient's quality of life, especially in the elderly (Rasyidin et al., 2021; Widyasari et al., 2022) .

Measurement of ADL independence in osteoarthritis patients generally uses *the BLarthell Indelx* because this instrument is reliable, easy to use, and able to describe the level of functional dependence of patients comprehensively (Mustaqim et al., 2023) . Although various studies have highlighted the benefits of therapy and rehabilitation in improving joint function, descriptive studies examining the details of Activity of Daily Living in osteoarthritis patients, especially at the hospital level, are still limited. Therefore, this study has a strong theoretical basis for describing the ADL level of osteoarthritis patients as a basis for planning nursing interventions oriented towards patient independence.

3. RESEARCH METHODS

This study used a categorical descriptive research design with a *cross-selection approach* , which aimed to describe the level *of Activity of Daily Living* (ADL) in osteoarthritis patients. This approach was chosen because it is suitable for assessing the condition and characteristics of respondents at a single measurement point without conducting an interview (Notoatmodjo, 2021).

The population in this study was all osteoarthritis patients undergoing treatment at Sultan Agung Selemarang Islamic Hospital. The study sample consisted of 98 respondents selected using *stratified random sampling techniques* , so that each member of the population had an equal chance of being selected according to the characteristics that had been determined. Inclusion and exclusion criteria were determined to ensure the suitability of the respondents to the research objectives.

Data collection was carried out using a modified *BLarthell Indelx instrument, which is used to assess the level of independence of Activity Daily Living* including mobility, moving, walking, and other self-care activities. *BLarthell Indelx* was chosen because it is a simple, reliable, and widely used instrument in nursing research to assess the functional independence of patients with musculoskeletal disorders (Elfelndi, 2024) . The results of the validity and reliability tests of the instrument show that the instrument is suitable for use with a good level of reliability.

Data analysis was conducted descriptively to describe the distribution of the level of independence *of Activity Daily Living* in osteoarthritis patients. Data were presented in the form of frequency distribution and cell selection to facilitate the interpretation of the research results. This research model describes the conceptual relationship between osteoarthritis conditions and the level of *Activity Daily Living* in patients, where osteoarthritis as a degenerative condition affects functional ability in carrying out daily activities.

4. RESULTS AND DISCUSSION

This study was conducted at Sultan Agung Islamic Hospital, Semarang, between September and October. Data collection was conducted after obtaining research permits and obtaining the respondents' consent. Data were collected directly using the BLarthell Indelx instrument, which has been modified to assess the level of *Activity of Daily Living* (ADL) in osteoarthritis patients. All collected data were analyzed descriptively to describe the characteristics of the respondents and their level of ADL independence.

Respondent Characteristics

The characteristics of the respondents include gender, occupation, and degree of osteoarthritis, which are important factors in understanding the variation in the functional condition of the patient.

Table 1 Distribution of ADL in OA patients based on gender, occupation, and OA grade at RSISA in October 2025 (n: 98).

Characteristics	Category	Frequency(f)	Percentage(%)
Gender	Man	32	32.7%
	Pelrelmpuan	66	67.3%
Work	housewife	34	34.7%
	civil servant	12	12.2%
	Businessman	14	14.3%
	self-employed	19	19.4%
Gradel Osteoarthritis	Delrajat 1	1	1.0%
	Delrajat 2	35	35.7%
	Delrajat 3	43	43.9%
	Delrajat 4	19	19.4%
	Total	98	100%

Based on Table 1, the majority of respondents were female (66 people (67.3%), while 32 people (32.7%) were male. This result is in line with research by Ariyanti et al. (2021) and WHO (2022) which reported that osteoarthritis is more common in women, especially in the elderly, which is associated with a decrease in the hormone elstrogen after the melanoma cell that affects bone and cartilage metabolism.

In terms of occupation, the majority of housewives work as housewives (34.7%). This finding is in line with the research of Delwanti and Rahmawati (2022) which states that domestic activities such as standing for a long time, kneeling, and lifting light weights can increase mechanical stress on the knee joints and accelerate the process of relaxation.

Based on the degree of osteoarthritis, the majority of osteoarthritis patients were at grade 3 (43.9%), followed by grade 2 (35.7%) and grade 4 (19.4%). This result is in line with the research of Kloppelnblurg & Blörelnblaum (2020) which stated that most osteoarthritis patients seek health services when complaints of pain and functional impairment are at the moderate to severe level.

Demographic Distribution of ADL Incidents Based on Body Mass Index (BMI)

Table 2. Distribution of ADL Events in Osteoarthritis Patients Based on BMI.

Variables	*Mean±SD*	*Median*	*Min-Max*	CI 95% Lower
BMI	26.97±4.533	27.00	17-42	26.00

The results of the analysis showed that the average BMI of the respondents was 26.97 ± 4.533, which is included in the overweight category, with the highest BMI reaching obesity category II. This finding is in line with Aliya's research (2020) which stated that excess blading is a major risk factor for osteoarthritis because it increases the mechanical blading in the joints supporting the blading.

Previous research has also shown that increased BMI is associated with decreased physical function and ADL abilities, leading to increased joint pain and mobility impairment (Rasyidin et al., 2021) . Thus, these research findings reinforce the evidence that BMI plays an important role in the activity impairment of osteoarthritis patients .

Demographic Distribution of ADL Incidents by Age

Table 3. Distribution of ADL Incidents in Osteoarthritis Patients Based on Age.

Variables	*Mean±SD*	*Median*	*Min-Max*	CI 95% Lower
Age	62.67±7.112	62.88	42-75	61.00

Based on Table 3, the average age of respondents was 62.67 ± 7.112 years, which indicates that osteoarthritis predominantly occurs in the elderly group. This finding is in line with Ismunandar et al. (2020) Ismunandar, I., Sari & Prablowo (2020) who stated that the aging process results in a decrease in cartilage elasticity and the ability of joint tissue to regenerate.

Research by Widyasari et al. (2022) also shows that increasing age is associated with decreased muscle strength and balance, which has a direct impact on decreased *Activity Daily Living abilities* and increased risk of dependency in the elderly with osteoarthritis.

Distribution of ADL independence categories in OA patients

Table 4. ADL Categories of Osteoarthritis Patients Based on Level of Dependence.

No	ADL OA Category	Score Range	Number of Patients (n)	Percentage (%)
1	Total dependence	0-13	1	1%
2	Very dependent	14-26	21	21.4%
3	Moderate dependence	27-39	24	24.5%
4	Mild dependence	40-52	31	31.6%
5	Independent	53-65	22	22.4%

The results of the study showed that the mild dependency category (31.6%) was the most frequently found category. This result is in line with the research of Sari et al., (2022) who reported that most osteoarthritis patients with mild dependency ranged from mild to moderate dependency due to chronic pain and joint stiffness.

The moderate dependency (24.5%) and extreme dependency (21.4%) categories reflect a more significant decline in motor function, especially in mobility and transfer activities. This finding is in line with research by Gunadi et al. (2022) which states that mobility impairment is the main factor influencing the decline in *BLarthell Indelx scores* in osteoarthritis patients.

Patients in the independent category (22.4%) showed good functional ability, which is thought to be related to the milder degree of osteoarthritis and the ability to adapt to daily activities. Meanwhile, patients with total dependence (1%) reflect a severe osteoarthritis condition that requires full support, as reported in research (Hellmi & Hardiansyah, 2024) .

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5. CONCLUSION AND SUGGESTIONS

This study shows that osteoarthritis patients at Sultan Agung Selumarang Islamic Hospital are mostly female, have advanced age, have body mass index ranging from mild to obese, and some have osteoarthritis ranging from mild to severe. These conditions have an impact on decreasing *Activity Daily Living independence* , where most of the patients are in the mild to moderate dependency category. These findings confirm that osteoarthritis not only causes structural disorders in the joints, but also has direct implications for the patient's functional ability to carry out daily activities, especially activities that require mobility and transfer.

Based on the results of this study, nurses are advised to conduct *Activity of Daily Living assessments* routinely using standardized instruments as a basis for planning nursing care that is oriented towards maintaining and increasing patient independence. Nursing interventions need to focus on increasing mobility, managing activities, and providing education on lifelong learning to prevent further functional decline. This study has limitations in its cross-sectional descriptive design and limited study location, so the results need to be interpreted with caution. Further research is recommended to use an analytical or longitudinal design by including other variables to obtain a more comprehensive picture of the factors that influence *Activity Daily Living* in osteoarthritis patients.

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