

THE APPLICATION OF THE BARTHEL INDEX IN ASSESSING THE INDEPENDENCE OF ELDERLY PATIENTS

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Abstract

Background: The global aging population is rising sharply. WHO data show that in 2015, 12.3% of the world's population was aged 60 or older, projected to reach nearly 22% by 2050. In Indonesia, the elderly population increased to 11.75% in 2023, from 10.48% the year before. In South Kalimantan, it reached 10.81%. In Banjarmasin, elderly residents increased from 46,888 in 2018 to 52,103 in 2020. This trend emphasizes the need to assess elderly independence, as aging leads to physical, mental, and social decline, impacting their ability to perform daily activities. The Barthel Index is a validated tool used to assess functional independence in 10 areas of daily living, including bathing, dressing, toileting, and mobility. **Purpose:** To analyze the application of the Barthel Index in assessing the independence of elderly individuals. **Method:** A community service activity was conducted at Yayasan Uma Kandung Banjarmasin with six elderly participants. Assessment used the Barthel Index form through observation and interview. Scores were categorized into five levels: total, severe, moderate, slight dependence, and full independence. **Results:** showed that 66.66% of the elderly were fully independent, 16.67% had slight dependence, and 16.67% had moderate dependence. None were severely or totally dependent. **Discussion:** The findings indicate that most participants maintained functional independence. The Barthel Index proved to be a practical, objective tool for evaluating daily living abilities and identifying care needs. Its regular use is recommended to monitor functional changes and plan appropriate interventions that support aging in place and improve quality of life.

Keywords: Barthel Index, Elderly, Independence.

Background

Elderly individuals are defined as those aged 60 years and older. Aging is a natural process characterized by a gradual decline in organ function, leading to increased vulnerability to various diseases that may result in death (Wulandari, 2023). Furthermore, this stage of life involves progressive physical, mental, and social changes (Suwandewi et al., 2024). These physical changes can significantly affect the independence of elderly individuals (Nurti, 2022). Elderly independence is determined by their functional status and ability to carry out daily activities (Sihaloho, 2022). The ability to perform daily tasks independently—known as Activities of Daily Living (ADL)—includes personal care routines such as bathing, dressing, urinating, defecating, eating, and moving from one place to another (Laili and Taukhid, 2023).

According to WHO data, countries around the world have experienced a significant increase in life expectancy. In 2015, the global population aged 60

and older was 12.3%, and this figure is projected to reach nearly 22% by 2050 (World Health Organization, 2024). The Central Statistics Agency (BPS) reported that in 2023, the elderly population in Indonesia accounted for 11.75% of the total population, an increase of 1.27% from the previous year, which stood at 10.48%. In South Kalimantan, the percentage reached 10.81% in 2023 (Badan Pusat Statistik, 2023). In Banjarmasin, the number of elderly residents increased from 46,888 (6.69%) in 2018, to 49,460 (6.98%) in 2019, and to 52,103 (7.28%) in 2020 (Badan Pusat Statistik, 2021).

The Barthel Index is a basic functional assessment tool in the form of a questionnaire consisting of 10 items. These items measure abilities such as bowel and bladder control, personal hygiene (e.g., using dentures, brushing teeth, combing hair, shaving, and washing the face), using the toilet (including undressing, cleaning, and flushing), eating, transferring from bed to chair, dressing, walking,

climbing stairs, and bathing. The Barthel Index score ranges from 0 to 20, with the following categories: 20 indicates full independence, 12–19 indicates mild dependence, 9–11 moderate dependence, 5–8 severe dependence, and 0–4 total dependence (Nurlianawati, 2021).

Independence is a personal trait developed progressively through individual growth. During this process, individuals continuously learn to act independently in facing various life situations, enabling them to think and behave autonomously (Sihaloho, 2022). Limitations in independence make it difficult for elderly individuals to meet their daily needs on their own, leading to dependence on others, which can ultimately reduce their quality of life (Nurti, 2022).

Method

This study was conducted as part of a community service activity aimed at assessing the functional independence of elderly individuals using the Barthel Index. The activity took place at Yayasan Uma Kandung Banjarmasin, South Kalimantan, on Friday, November 29, 2024, from 3:00 PM to 5:00 PM.

A total of six elderly participants were involved in the assessment. The participants were selected based on their availability and residence at the foundation. Prior to the activity, a preparatory phase was carried out, which included collecting theoretical references, obtaining institutional permissions, and organizing logistics and roles within the research team.

The Barthel Index assessment form was used as the primary instrument to evaluate functional independence. This tool measures ten basic activities of daily living (ADL), such as feeding, bathing, grooming, dressing, bowel and bladder control, toilet use, transfers, mobility, and stair climbing. Each item was scored based on the participant's ability to perform the task independently or with assistance, with total scores ranging from 0 to 100. The scoring categories were: 0–20 (total dependence), 21–60 (severe dependence), 61–90 (moderate dependence), 91–99 (slight dependence), and 100 (full independence).

Data collection involved direct observation and structured interviews, either with the elderly participants or their caregivers. Blood pressure was also measured prior to the assessment to ensure the participants were in a stable condition. All findings were recorded and summarized in tabular form for

analysis. The results were then discussed with the participants, followed by the distribution of care packages as part of the closing activity.

Results and Discussion

To understand the demographic characteristics of the elderly participants, a classification based on age was conducted. The distribution of participants by age is presented in Table 1.

No	Elderly Age Classification	Frequency	Percentage
1	Middle Age (45-59 years)	0	0%
2	Elderly (60-74 years)	2	33.33%
3	Old (75-90 years)	4	66.67%
4	Very Old (>90 years)	0	0
Total		6	100.00%

Based on Table 1, the majority of respondents (66.67%) were classified as old elderly (75–90 years), indicating that the elderly population at the service site generally falls within the advanced age group.

To assess the functional independence of the elderly, the Barthel Index was used as a validated instrument. The results of this functional assessment are summarized in Table 2.

Table 2. Activity Ability Categories Based on the Barthel Index

No	Independence Category	Frequency	Percentage
1	Total dependence (0-20)	0	0%
2	Severe dependence (21-60)	0	0%
3	Moderate dependence	1	16.67%
4	Slight dependence	1	16.67%
5	Fully independent	4	66.66%
Total		6	100.00%

Based on Table 2, the majority of elderly participants (66.66%) demonstrated full independence in performing daily activities. Only a small portion (16.67%) experienced moderate and slight dependence. No respondents were categorized as having severe or total dependence. This indicates that the interventions implemented at Yayasan Uma Kandung have been effective in maintaining the functional independence of the elderly.

Discussion

The findings of this study indicate that a significant proportion of elderly participants (66.66%) demonstrated full independence in carrying out activities of daily living (ADLs), as measured by the Barthel Index. Only a small proportion exhibited moderate (16.67%) and slight (16.67%) dependence, with no participants falling into the categories of severe or total dependence. These results suggest that the elderly residents of Yayasan Uma Kandung maintain relatively high functional status, reflecting the effectiveness of the institution's support systems.

Aging is a natural process that involves physiological, psychological, and social changes that progressively affect a person's ability to perform routine activities independently (Wulandari, 2023; Suwandewi et al., 2024). According to Lawton and Brody's theory of functional capacity, the ability to carry out ADLs is one of the primary indicators of quality of life and independence in older adults (Wróblewska Z et al, 2023). When these functions are preserved, elderly individuals are more likely to experience emotional well-being, lower dependency rates, and reduced healthcare costs (Reynolds 3rd, C. F, et al, 2022).

The application of the Barthel Index in this context proved to be an effective method for assessing functional ability. As supported by Suwandewi et al. (2024) and Nurlianawati (2021), the Barthel Index is a valid, reliable, and responsive tool for evaluating daily functional performance, especially in older populations. It assesses 10 fundamental ADLs, including feeding, bathing, grooming, dressing, toileting, transferring, mobility, and stair climbing. High scores, such as those seen in the majority of participants, correlate with a high degree of autonomy and reduced need for caregiving assistance.

The dominance of the "old elderly" group (75–90 years), as shown in Table 1, adds relevance to these findings. As people age, functional decline becomes more prevalent due to natural degenerative changes in musculoskeletal strength, neuromuscular coordination, and sensory processing (Wang J et al, 2024). However, the fact that individuals in this advanced age category maintained independence suggests that environmental, social, and institutional factors play a protective role (Izquierdo M et al, 2021). Yayasan Uma Kandung's structured daily activities, spiritual support programs, routine check-ups, and stable living environment likely

contribute to preserving the physical and mental well-being of its residents.

Moreover, according to Maslow's Hierarchy of Needs, autonomy and the ability to fulfill one's own basic needs are closely linked to self-esteem and self-actualization in later life stages (Taneva T, 2023). The inability to perform daily tasks often results in frustration, depression, and feelings of worthlessness in older adults. Therefore, maintaining independence through consistent evaluation and appropriate interventions, such as those carried out in this study, can enhance both physical function and psychological resilience (Poole L et al, 2022).

The presence of moderate and slight dependence among some participants should not be overlooked. These individuals are at increased risk of further decline if preventive strategies are not implemented. The disuse theory in geriatrics explains that decreased physical activity leads to accelerated functional deterioration. Thus, regular physical therapy, mobility exercises, and health monitoring should be part of continued care planning (Bottomley JM & Lewis CB, 2024). As Purba et al. (2022) noted, early detection of functional decline is essential to tailor interventions that support elderly autonomy and reduce long-term care dependency.

In conclusion, the use of the Barthel Index not only served as an assessment tool but also provided a framework for understanding the current status of elderly independence within the institution. These findings support the importance of structured elderly care programs that emphasize routine functional evaluation, personalized support, and community-based health promotion.

Conclusion

This study demonstrated that the application of the Barthel Index is an effective method for assessing the level of independence among elderly individuals. The majority of participants (66.66%) at Yayasan Uma Kandung were found to be fully independent in performing daily activities, with only a minority exhibiting slight or moderate dependence. These findings suggest that the elderly residents benefit from an environment that supports functional health and autonomy. The Barthel Index also served as a reliable tool for identifying

individuals who may require targeted interventions to prevent further functional decline.

Overall, this study highlights the importance of regular functional assessments in elderly care settings to maintain quality of life and prevent early dependency. The preservation of functional independence not only improves physical well-being but also enhances emotional and social stability in the elderly population.

Suggestion

It is recommended that elderly care institutions conduct regular assessments using the Barthel Index to monitor functional status and detect early signs of dependence. Individuals with moderate or slight dependence should receive targeted interventions, such as physical therapy and psychosocial support, to maintain their independence. Caregivers should be trained to provide assistance that encourages self-reliance. Institutions like Yayasan Uma Kandung are encouraged to continue their structured programs, which have proven effective in supporting elderly autonomy. Additionally, health authorities should integrate functional assessments into public health strategies to improve the quality of elderly care services.

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