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EVALUATING THE IMPACT OF COGNITIVE IMPAIRMENT ON DAILY LIVING ACTIVITIES IN ELDERLY PATIENTS AT BACH MAI HOSPITAL'S REHABILITATION CENTER IN 2025

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ABSTRACT

Objective: (1) To describe the characteristics of cognitive impairment in elderly patients undergoing treatment at Bach Mai Hospital's Rehabilitation Center in 2025; (2) To analyze the impact of cognitive impairment on daily living activities in elderly patients at Bach Mai Hospital's Rehabilitation Center in 2025.

Research methods: A descriptive cross-sectional study was conducted at Bach Mai Hospital's Rehabilitation Center.

Research results: The study revealed that 62.5% of elderly patients at the center experienced cognitive impairment, primarily of a mild degree. Notably, the 60-69 age group showed the highest prevalence of cognitive impairment, reflecting a trend of the condition affecting younger elderly individuals. Furthermore, a clear correlation emerged: the more severe the cognitive impairment, the higher the level of dependence in daily activities, with 70% of cognitively impaired patients exhibiting severe reliance. This confirms that cognitive impairment significantly impacts the independence of elderly patients.

Conclusion: Cognitive impairment has a direct and strong link with daily living function. The more cognitive impairment, the more severely the ability to perform daily activities was affected, leading to a higher level of dependence.

Keywords: Cognitive impairment, Daily living function (or Activities of Daily Living - ADLs), Elderly people (or older adults), Rehabilitation.

1. INTRODUCTION

The global population is rapidly aging, with an increasing proportion of older adults [1]. This aging process often leads to functional decline and disability, posing challenges for elderly individuals in their daily lives. Cognitive impairment is one of the primary causes of this dependence. Cognition encompasses essential higher functions such as memory, attention, decision-making ability, and thinking. When these functions decline, the patient's life and ability to care for themselves are severely affected. This reduces the ability to perform both basic activities of daily living (ADLs) like eating, bathing, mobility, and instrumental activities of daily living (IADLs) such as shopping, financial management, and independent telephone use. As cognitive impairment directly impacts the independence of elderly patients, we conducted this study with two main objectives:

1. To describe the characteristics of cognitive impairment in elderly patients undergoing treatment at Bach Mai Hospital's Rehabilitation Center in 2025.

2. To analyze the impact of cognitive impairment on daily living activities in elderly patients at Bach Mai Hospital's Rehabilitation Center in 2025.

2. SUBJECTS AND METHODS

2.1. Study Design

This was a descriptive cross-sectional study.

2.2. Time and Location of Study

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- Study Period: Cross-sectional survey from December 2024 to May 2025.

- Study Location: Bach Mai Hospital's Rehabilitation Center.

2.3. Study Participants

Elderly patients aged ≥60 years old undergoing treatment at Bach Mai Hospital's Rehabilitation Center from December 2024 to May 2025.

- *Exclusion Criteria:*

+ Subjects or their families who do not agree to participate in the study.

+ Patients with aphasia.

+ Patients with pre-existing visual or auditory impairments.

2.4. Sample Size

All eligible elderly patients undergoing treatment at Bach Mai Hospital's Rehabilitation Center from February 2025 to May 2025 (n=80).

2.5. Data Collection Tools

- Patient Medical Records

- Mini-Mental State Examination (MMSE): This scale consists of 7 assessment items, numbered 1 to 7, with a total score of 30. Each correct answer earns 1 point, and the results are interpreted as follows:

+ ≥ 24 points: Normal

+ 20 – 23 points: Mild cognitive impairment

+ 14 – 19 points: Moderate cognitive impairment

+ < 14 points: Severe cognitive impairment

- Barthel Index: A tool to assess the level of functional independence in daily living activities, with scoring as follows:

+ 0–20: Total dependence

+ 21–60: Severe dependence

+ 61–90: Moderate dependence

+ 91–99: Slight dependence

+ 100: Complete independence

2.6. Data Collection Methods

- Step 1: Select all eligible patients aged ≥ 60 years old.

- Step 2: Conduct interviews and collect data using MMSE and Barthel standard scales.

- Step 3: Researchers analyze and process the data.

- Step 4: Discuss and evaluate the impact of cognitive impairment on patients' daily living function.

2.7. Data Processing Methods

Data was entered and processed using SPSS 20.0 software. Descriptive analysis was performed to show frequencies and percentages of study variables, and odds ratios (OR). Chi-square tests were used to test for differences between two proportions.

2.8. Ethical Considerations

The study received approval from the Scientific Council of Hai Duong University of Medical Technology and Bach Mai Hospital. Participants voluntarily agreed to participate in the study, and all information was kept confidential and used solely for research purposes.

3. RESEARCH RESULTS

3.1. Characteristics of Cognitive Impairment in Elderly Patients Undergoing Treatment at Bach Mai Hospital's Rehabilitation Center

Table 1. Some General Characteristics of the Study Participants

Characteristic		Number of Individuals (n=80)	Percentage (%)
Age Group	60 – 69	42	52,5
	70 – 79	29	36,3
	>80	9	11,3
	Mean Age (years) $\overline{X}$ ± SD	69,02 ± 8,286	
Gender	Male	44	55
	Female	36	45

From Table 1, more than half of the participants (52.5%) belong to the 60-69 age group. This indicates that the study population primarily consists of individuals in the relatively younger spectrum of the elderly population. The mean age of participants is approximately 69 years ($\overline{X}$ = 69.02), with a standard deviation of about 8.3 years. This confirms the concentration of participants in the younger elderly age groups. The study has a slightly higher number of male participants (55%) compared to female participants (45%). Although there was a difference, it was not significant, suggesting a relatively mixed gender sample.

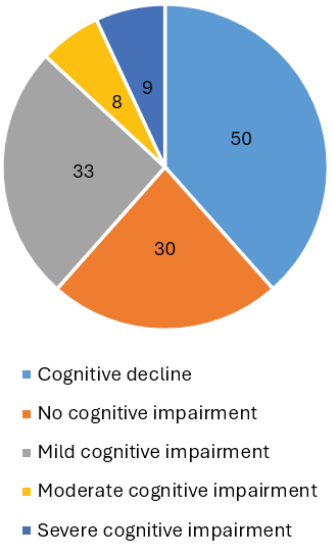

Chart 1. Prevalence and Severity of Cognitive Impairment

The chart illustrates that cognitive impairment is prevalent among the study participants, with 62.5% (50 out of 80 individuals) affected, while 37.5% (30 individuals) have normal cognition. Among those with cognitive impairment, the majority (33 out of 50 individuals) experience mild cognitive impairment. However, there are also notable proportions of moderate (8 individuals) and severe (9 individuals) cases. In summary, Cognitive impairment was a common issue in this study population, predominantly mild, but moderate and severe cases warrant attention.

3.2. Analysis of the Relationship between Cognitive Impairment and Daily Living Function in Elderly Patients

Table 2. Relationship between Cognitive Status and Level of Independence (n=80)

Level of Independence	No Cognitive Impairment		With Cognitive Impairment		p
	(n)	(%)	(n)	(%)	
Total dependence	1	33,3	2	66,7	0,002
Severe dependence	12	25,5	35	74,5	
Moderate dependence	17	56,7	13	43,3	
Slight dependence	0	0	0	0	
Complete independence	0	0	0	0	
Total	30	100	50	100	

Table 2 demonstrates a statistically significant relationship ($p<0.05$) between cognitive impairment and the level of independence in daily living activities. Cognitive impairment was a crucial factor that significantly increased the level of dependence on daily activities among elderly patients.

- Total and Severe Dependence: The group with cognitive impairment shows an overwhelming proportion (66.7% in total dependence and 74.5% in severe dependence) compared to the group without cognitive impairment. This indicates that cognitive impairment was directly linked to an increased level of dependence.

- Moderate Dependence: Conversely, the group without cognitive impairment has a higher proportion of moderate dependence (56.7%) compared to the group with cognitive impairment (43.3%).

Notably, no patients in either group achieved "slight dependence" or "complete independence," reflecting the characteristics of the study population at the Rehabilitation Center.

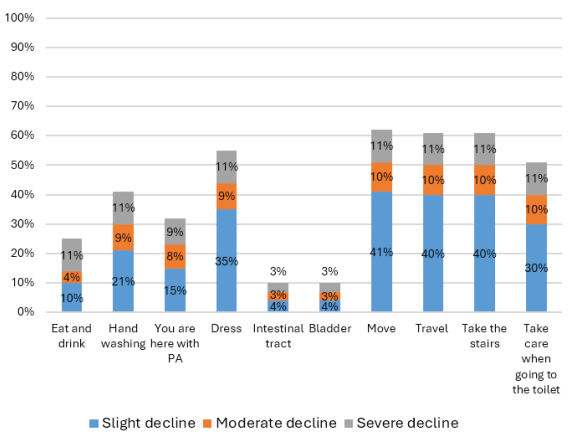

Chart 2. Prevalence of Cognitive Impairment by Barthel Index Activity

The chart shows that cognitive impairment affects all Activities of Daily Living (ADLs), especially those requiring coordination and movement. Motor and mobility activities (Transfers, Ambulation, Stair Climbing, Dressing) are most affected, with a total cognitive impairment rate exceeding 55%. Personal hygiene and eating activities are moderately affected. Bowel and bladder control functions are the least affected by cognitive impairment.

4. DISCUSSION

4.1. Characteristics of Cognitive Impairment in Elderly Patients Undergoing Treatment at Bach Mai Hospital's Rehabilitation Center

Among 80 elderly patients, 62.5% (50 individuals) suffered from cognitive impairment. The majority of cognitive impairment cases were mild (41.3%), followed by severe (11.3%) and moderate (10%). These results are consistent with Vahid Rashedi et al (45.3% mild impairment) [2], but the rate of severe impairment in this study was significantly higher (11.3% compared to 2.8%). This might be due to the study population at the rehabilitation center having more severe underlying medical conditions.

Regarding cognitive functions affected according to the MMSE: The ability to follow commands had the highest rate of cognitive impairment (85% mild impairment). Recall was also severely affected (58.8% mild impairment, 21.3% severe impairment). Attention and calculation were most severely affected in those with severe cognitive impairment (30%). Conversely, word registration and naming objects/repeating sentences were least affected, with very high normal rates (86.3% and 88.8% respectively) and almost no severe impairment. This indicates that short-term memory and language are less impacted. These results are consistent with Nguyen Van Tuan's study (2020) [3] on the decline of attention, recall, and ability to follow commands in elderly individuals, and Tran Thi Huong's study (2021) [4] on the good preservation of word registration ability.

4.2. Analysis of the Relationship between Cognitive Impairment and Daily Living Function in Elderly Patients

The study reveals a close and statistically significant relationship ($p=0.002<0.05$) between cognitive status and the patient's level of independence. This finding was entirely consistent with recent research. Zhang et al. (2020) [5] emphasized cognitive impairment as a leading risk factor for reduced ability to perform basic and complex daily living activities. Patients with low MMSE scores often struggle with memory, planning, and maintaining attention, thereby increasing their level of dependence. Mok et al. (2017) [6]: A study conducted in Hong Kong also reported a 38.6% prevalence of post-stroke cognitive impairment, and this patient group had significantly lower Barthel Index scores compared to the group without cognitive impairment.

The study clarifies that cognitive impairment affects the ability to perform basic daily living activities in a sequential decline, with an early and prominent impact on self-care activities. Toileting care: This activity was most severely affected, with 51% of cognitively impaired individuals experiencing difficulties. Because it requires cognitive ability to control behavior, understand steps, and maintain safe hygiene. When cognitive function declines, bladder and bowel control or emergency handling may also be limited, increasing the risk of incontinence and complete dependence on caregivers. Bathing: Recorded a high impact rate of 41%, due to the requirement for cognitive awareness of safe steps, temperature control, and handling hazards like slipping. Decreased memory and concentration increase the risk of falls or performing incorrect procedures, leading to a higher level of dependence. Personal hygiene (e.g., brushing teeth, washing face, combing hair): Also showed a high difficulty rate of 32% in the cognitively impaired group. Although these are simple, repetitive tasks, in elderly patients with cognitive disorders, these tasks may be forgotten, performed out of sequence, or incomplete, directly affecting health and overall hygiene. These findings are consistent with Katz et al.'s description [7] of the sequential decline of ADL functions from complex to simple, where bathing and personal hygiene are among the earliest affected functions. The results indicate that basic self-care functions are affected earlier and more severely than other complex functions, which is consistent with functional decline models proven by many studies.

5. CONCLUSION

Cognitive impairment not only limits cognitive function but also hinders the motor rehabilitation process, indirectly reducing the level of independence. This emphasizes the necessity of prioritizing cognitive assessment in comprehensive rehabilitation planning for patients, particularly for stroke patients. Early screening, detection, and timely intervention for mental disorders are crucial to maintaining and enhancing independence, while also reducing the burden on families and society. Concurrently, there needs to be a plan to support and train caregivers to ensure safety, hygiene, and quality of life for elderly patients.

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