

## Selected aspects of functional efficiency of geriatric wards patients

### Wybrane aspekty sprawności funkcjonalnej pacjentów oddziałów geriatrycznych

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#### Abstract

**Introduction.** Functional efficiency is the result of various deficits, regardless of the diseases causing them and other factors. The assessment of the state of functioning allows to direct diagnostic and therapeutic activities and is a platform for communication between people involved in the geriatric care. **Aim of the study.** The aim of the study was to determine the functional efficiency of patients in geriatric wards in the Lublin Province. **Material and methods.** The study was conducted in a group of 308 patients of geriatric wards. They were all three geriatric wards in the Lubelskie Voivodeship: in Biała Podlaska, Parczew and Włodawa. The study group consisted 63.97% of women. People aged 75-89 were the largest group. Definitely the most were widowed people (66.23%), with basic education (78.25%) and living in the countryside (64.30%). The research used the Barthel scale (Barthel Index). **Results.** Most seniors were qualified to category II (52.27%) on the Barthel scale. 25.32% of respondents were assessed in category I, and the remaining 22.41% were in category III. In the overall assessment, the examined group of patients in geriatric wards achieved a score of  $55.59 \pm 33.68$  on average. **Conclusions.** The examined group of patients of geriatric wards showed reduced efficiency in everyday activities. Age significantly differentiated the fitness of seniors, and together with age the fitness decreased. Marital status, education and place of hospitalization significantly differentiated the level of functional efficiency of patients in geriatric wards. (Gerontol Pol 2020; 28: 23-27)

**Keywords:** functional efficiency, Barthel scale, geriatric ward

#### Streszczenie

**Wprowadzenie.** Sprawność funkcjonalna jest wypadkową różnych deficytów, niezależnie od chorób je wywołujących i innych czynników. Ocena stanu funkcjonowania pozwala ukierunkować działania diagnostyczno-terapeutyczne i stanowi płaszczyznę porozumienia między osobami zaangażowanymi w opiekę geriatryczną. **Cel.** Celem badań było określenie sprawności funkcjonalnej pacjentów oddziałów geriatrycznych na terenie województwa lubelskiego. **Materiał i metody.** Badania przeprowadzono w grupie 308 pacjentów oddziałów geriatrycznych. Były to wszystkie trzy oddziały geriatryczne w województwie lubelskim: w Białej Podlaskiej, Parczewie i Włodawie. W badanej grupie było 63,97% kobiet. Największą grupę stanowiły osoby w wieku 75-89 lat. Zdecydowanie najwięcej było osób owdowiałych (66,23%), z podstawowym wykształceniem (78,25%) i mieszkających na wsi (64,30%). W badaniach wykorzystano skalę Barthel. **Wyniki.** Najwięcej seniorów zakwalifikowano do kategorii II (52,27%) w skali Barthel. W kategorii I było ocenionych 25,32% badanych, a pozostałe 22,41% znalazło się w kategorii III. W ocenie całościowej badana grupa pacjentów oddziałów geriatrycznych uzyskała wynik na poziomie średniej  $55,59 \pm 33,68$  pkt. **Wnioski.** Badana grupa pacjentów oddziałów geriatrycznych wykazywała się obniżoną sprawnością w zakresie czynności codziennego życia. Wiek istotnie różnicował sprawność seniorów, wraz ze wzrostem wieku ulegała ona obniżeniu. Stan cywilny, wykształcenie oraz miejsce hospitalizacji istotnie różnicowały poziom sprawności funkcjonalnej pacjentów oddziałów geriatrycznych. (Gerontol Pol 2020; 28: 23-27)

**Słowa kluczowe:** sprawność funkcjonalna, skala Barthel, oddział geriatryczny

## Introduction

The multidimensionality of the aging process means that seniors need a specific assessment based on which the extent to which their functioning has changed can be determined. This is important not only from the point of view of planning medical care, but also in relation to determining care services, as well as designing strategies to improve the functioning of the elderly [1].

Functional efficiency is the result of various deficits, regardless of the diseases causing them and other factors. The assessment of the state of functioning allows to direct diagnostic and therapeutic activities and is a platform for communication between people involved in geriatric care [2].

## The aim

The aim of the study was to determine the functional efficiency of patients in geriatric wards in the Lublin Province.

## Material and methods

The study was conducted in a group of 308 patients of geriatric wards. They were all three geriatric wards in the Lubelskie Voivodeship: in Biała Podlaska, Parczew and Włodawa. Hospital management approval was obtained. The research was conducted in accordance with ethical principles. Patients gave informed consent to participate in the study. Patients were assessed by nursing staff working in the above departments.

There were 63.97% women in the study group. The largest group were people aged 75-89. Definitely the most were widowed persons (66.23%), with basic education (78.25%) and living in the countryside (64.30%). The characteristics of the examined group are presented in the table I.

The research used the Barthel scale (Barthel Index). This scale is used to assess self-care performance. Depending on the scope of independence, the patient could receive from 0 to 100 points. Based on the assessment of daily activities, three categories of patients are determined: category I – patients coping well with daily activities, (100-86 points); category II consists of patients unable to cope with part of everyday activities, (21-85 points); category III consists of patients unable to perform most everyday activities (0-20 points) [3,4].

The obtained test results were subjected to statistical analysis. A level of significance of  $p < 0.05$  indicating the existence of statistically significant differences or dependencies was adopted.

Table I. Characteristics of the studied group

	Variable	%
Sex	Woman	63.97
	Man	36.03
Age	65-74 years old	21.43
	75-89 years old	70.45
	90 and above years old	8.12
Marital status	Widowers/widows	66.23
	In relationships	33.77
Education	Basic	78.25
	Vocational	13.66
	Middle	6.82
	Higher	1.27
Place of residence	City	35.70
	Village	64.30
Place of hospitalization	Biała Podlaska	32.47
	Parczew	33.77
	Włodawa	33.76

## Results

Most seniors qualified for category II (52.27%) on the Barthel scale. 25.32% of the respondents were assessed in category I, and the remaining 22.41% were in category III. In the overall assessment, the examined group of patients in geriatric wards achieved a score of  $55.59 \pm 33.68$  on average.

Table II presents patients' assessment using the Barthel scale depending on selected sociodemographic variables. There was no significant difference in the assessment of efficiency between sexes. The assessment was at a similar level both in the group of women (55.68 points) and men (55.42 points).

While analyzing the efficiency of patients depending on their age, it was found that the highest efficiency was demonstrated by studies in the range of 65-74 years (64.01 points). The efficiency deteriorated with age, to 30.40 points in people over 90 years old. The statistical analysis carried out showed a significant difference ( $p = 0.0001$ ) between the analyzed groups.

While analyzing the marital status of the respondents, they were divided into two groups: widowed people, this group was definitely more numerous, and people living in a relationship. It was found that the persons remaining in the relationship had higher functional efficiency (63.22 points) compared to widowed persons (51.70 points). The difference between the groups was statistically significant ( $p = 0.002$ ).

The studies also assessed efficiency depending on the education of patients. People with higher education (65.30 points) turned out to be the most abled and at a

similar level with secondary education (65.20 points). On the other hand, the largest deficits in everyday functioning were observed at those with vocational education (45.52 points). Based on the statistical analysis, there was a significant difference between the analyzed groups ( $p = 0.036$ ).

An assessment of efficiency depending on the patients' place of residence was also analyzed. People from the rural environment showed a higher level of independence (56.67 points) compared to people from the city (53.30 points). However, in this aspect the difference between the groups was not statistically significant ( $p > 0.05$ ).

The last analyzed issue was determining the degree of independence of seniors depending on the place of hospitalization. The highest level of efficiency was observed in people hospitalized in Włodawa (78.50 points). At the same time, the respondents in the hospital in Parczew had the largest functional deficits (39.39 points). The difference between the groups was highly statistically significant ( $p = 0.000$ ).

## Discussion

Physical fitness/efficiency decreasing with age results in the loss of independence of the elderly and generates the need to use the help of others. Impaired mobility increases the risk or worsens the course of diseases

which are conditioned, among others, by lack of movement. Also, reduced mobility may lead to the patient's immobilization and, as a consequence, pressure sores, muscular atrophy and muscle contracture [5]. A decrease in functional efficiency leads to a loss of independence in self-care. The consequence of this may be prolonged hospital stay or more frequent hospitalizations, the need to be placed in a care institution or even an increase in mortality. Therefore, a reliable assessment of patients' condition in terms of functional fitness is needed [6].

Our own research showed that the largest group of patients requires help in everyday activities (average for the study group 55.59 points). Strugała and Wieczorowska-Tobis [7] obtained significantly different results in their studies. The authors stated that the average result obtained by the patients hospitalized in geriatric wards on the Barthel scale was 89.2 points, which means that the patients were to a large extent abled within basic life functions. Also geriatric patients of neurological wards had a higher degree of functional efficiency (average 70.75 Barthel points) [8] than in our studies. In other studies, the elderly hospitalized in orthopedic departments obtained a score of 66.64 points [9]. The high level of independence is indicated by the results of studies concerning seniors staying in their environment. The average number of points on the Barthel scale obtained by the respondents was 92.8, which means that the majority of respondents were able to perform basic everyday activities. 83.3% of the study group received scores

Table II. Sociodemographic variables and Barthel Index evaluation (mean ± standard deviation)

Variable	Barthel Index	Statistical analysis
Sex	Women	Z = -0.067 p = 0.946
	Men	
Age	65-74	H = 18.337 p = 0.0001
	75-89	
	90+	
Marital status	Widowers/widows	Z = -2.998 p = 0.002
	In a relationship	
Education	Basic	H = 6.643 p = 0.036
	Vocational	
	Middle	
	Higher	
Place of residence	City	Z = -0.648 p = 0.517
	Village	
Place of hospitalization	Biała Podlaska	F = 50.597 p = 0.000
	Parczew	
	Włodawa	

Z – Mann-Whitney U test; H – Kruskal-Wallis test; F – analysis of variance

between 86 and 100. These people were characterized by good functional condition. The respondents who received 21-85 points (15.7%) were included in the group of people with disabilities in the field of basic everyday activities. Total disability occurred in 1% of respondents [10]. Also in the study by Blaszczyk et al. seniors living at home obtained similar results (average 89.77 points) [11].

Our study did not show a relationship between sex and functional efficiency of patients. Starczewska et al. obtained similar results in their studies [10]

The aging process naturally limits the functioning of older people. Advanced age is one of the most characteristic and permanent factors differentiating the functional efficiency of seniors [12]. The results of own research confirm this relationship. People aged 65-74 were the most physically efficient and their efficiency deteriorated with aging. This coincides with the results of studies of other authors, indicating a deterioration of independence with increasing age [10,13].

In our studies, marital status significantly affected the performance of geriatric patients. People in the relationship showed a higher degree of independence, compared to people being alone. This coincides with the results of other researchers [9,10].

Our research showed that education significantly affects the physical efficiency of seniors. The most independent were people with higher education. Other studies conducted in Poland confirm this relationship [8,9]. This is also confirmed by studies conducted in Nigeria among geriatric patients. As in our own studies, they showed that the incidence of functional disability was lower among respondents with higher education [14].

Our research also showed that people living in the countryside had a higher level of independence, but this

was not a significant difference. This is confirmed by research conducted in a group of seniors in the Lublin and Podkarpackie voivodships. The surveyed rural inhabitants mostly presented a high degree of functional efficiency, and this was a statistically significant difference [15].

Borowiak and Kostka [16] and Rybka et al. [17] obtained different results in their research. In the studies these authors, the place of residence significantly affected the efficiency of seniors in carrying out everyday activities, except that the city's inhabitants showed a higher level of functional fitness.

The results of our studies also showed a difference in the degree of patient efficiency in individual hospitals. The highest scores were given to people hospitalized in Włodawa and the lowest in Parczew. The degree of reference of hospitals does not affect the functional efficiency of patients in geriatric wards. This may indicate that in the case of these patients and their functional effectiveness, availability of specialized procedures and equipment are not decisive.

## Conclusions

The examined group of patients of geriatric wards showed reduced efficiency in everyday activities. Age significantly differentiated the efficiency of seniors, and it decreased with increasing age. Marital status, education and place of hospitalization significantly differentiated the level of functional efficiency of patients in geriatric wards.

Conflict of interest

None

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