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Functional capacity of seniors at the age of 80 and older in basic and instrumental everyday actions

Wydolność funkcjonalna seniorów w wieku 80 lat i starszych w zakresie podstawowych i instrumentalnych czynności życia codziennego

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Abstract

Introduction. *In 2035 the number of Poles aged 65+ and 80+ will increase in relation to 2014 from 471 802 and 158347 to 753717 and 304211, i.e. by 59.8% and 92.2% respectively.* ***Purpose of the study.*** *The assessment of functional efficiency of seniors aged 80 and older in terms of everyday activities was based on selected scales.* ***Material and methods.*** *The study was conducted in the City and municipalities of Płock and of Mała Wieś in the period of June 2017- March 2018, within the group of 100 seniors aged 80-99. Three scales were used in the study: the scale of the instrumental assessment of everyday life (I-ADL, from Lawton's Instrumental Activities of Daily Living), the scale of the assessment of instrumental activities of everyday life (The Duke OARS Assessment of IADL) and the scale of assessment of basic everyday activities (ADL, Activities of Daily Living) adapted by Katz. Statistical analysis of the obtained ages was performed using the Mann-Whitney U test, the Pearson Chi-square test and the Chi-square test with the Yates correction.* ***Results.*** *The functional efficiency of the seniors with respect to basic and instrumental activities of everyday life depended significantly on sex, and to the benefit of women, and equaled respectively according to ADL Lawton scale - $p = 0.041241$ and IADL - $p = 0.037271$. In the assessment according to the ADL Katz scale, this relationship was not statistically significant ($p = 0.050501$). The mean score obtained by the respondents according to individual scales was 0, with the median respectively 0-3 points in the IADL Lawton scale, 0-7.5 in the IADL scale and 0-5 points in the ADL Katz scale.* ***Conclusions.*** *The simultaneous application of three scales to the assessment of everyday activities enabled a comprehensive assessment of this range of functional efficiency of seniors due to the complementary nature of the criteria evaluated according to these scales. Analyzed seniors' efficiency is not radically different from the nationwide one, therefore it is necessary to take dynamic actions for the implementation of geriatric care in this region. (Gerontol Pol 2018; 26; 246-250)*

Key words: *the elderly, instrumental everyday actions*

Streszczenie

Wstęp. *W 2035 roku liczba Polaków w wieku 65+ i 80+ zwiększy się w stosunku do roku 2014 odpowiednio z 471 802 i 158347 do 753717 i 304211, tj. o 59,8% i o 92,2 %.* ***Cel badania.*** *Ocena wydolności funkcjonalnej seniorów w wieku 80 lat i starszych w zakresie czynności życia codziennego w oparciu o wybrane skale.* ***Materiał i metody.*** *Badanie przeprowadzono w Mieście i Gminie Płock oraz gminie Mała Wieś w okresie czerwiec 2017- marzec 2018 w grupie 100 seniorów w wieku 80-99 lat. W badaniu wykorzystano trzy skale: skalę oceny instrumentalnych czynności życia codziennego (I-ADL, od ang. Instrumental Activities of Daily Living) wg Lawtona, skalę oceny instrumentalnych czynności życia codziennego*

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(The Duke OARS Assessment of IADL) oraz skalę oceny podstawowych czynności życia codziennego (ADL, od ang. Activities of Daily Living) adaptowane wg Katza. Analizę statystyczną uzyskanych wieków przeprowadzono z użyciem testu U Manna-Whitneya, testu Chi-kwadrat Pearsona oraz testu Chi-kwadrat z poprawką Yatesa. ***Wyniki.*** *Wydolność funkcjonalna badanych seniorów w zakresie podstawowych i instrumentalnych czynności życia codziennego zależała istotnie statystycznie od płci, z korzyścią dla kobiet i wynosiła odpowiednio wg skali ADL Lawtona – p = 0,04124 oraz skali IADL – p = 0,03727. W ocenie wg skali ADL Katza zależność ta nie była istotna statystycznie (p = 0,05050). Średnia liczba punktów uzyskana przez badanych wg poszczególnych skal wynosiła 0, przy czym mediana odpowiednio 0-3 punkty w skali IADL Lawtona, 0-7,5 w skali IADL oraz 0-5 punktów w skali ADL Katza.* ***Wnioski.*** *Jednoczasowe zastosowanie trzech skal do oceny czynności życia codziennego pozwoliło na kompleksową ocenę tego zakresu wydolności funkcjonalnej seniorów ze względu na uzupełniający charakter kryteriów wartościowanych w tych skalach. Analizowana wydolność seniorów płockich nie różni się diametralnie od ogólnopolskiej, w zawiązku z czym należy podjąć dynamiczne działania dla wdrożenia opieki geriatrycznej w tym regionie. (Gerontol Pol 2018; 26; 246-250)*

Słowa kluczowe: *osoby starsze, instrumentalne czynności życia codziennego*

Introduction

According to ZUS data, in 2035 the number of Poles aged 65+ and 80+ will increase in relation to 2014 from 471 802 and 158347 to 753717 and 304211, i.e. by 59.8% and 92.2% respectively. However, the number of inhabitants of Płock aged above 65 increased in 2016 by 35.5% in relation to 2010. Such a demographic trend enforces the assessment of functional efficiency of seniors on the one hand to provide proper care, and on the other hand, to implement health programs for younger generations increasing the probability of achieving better health potential and greater self-care efficiency at an elderly and old age.

The study objective

Assessment of functional efficiency of seniors aged 80 and older in terms of everyday activities based on selected scales.

Material and methods

The study was conducted in the City and municipalities of Płock and of Mała Wieś in the period of June 2017 - March 2018,within the group of 100 seniors aged 80-99, average lifespan of86 years(median: 83-85.5 years), including women (N - 67) – 86 years (median: 83-89 years), men (N-33) – 87 years (median: 82.5-93.5 years), city residents (N-58) – 86 years (median: 83-90 years), inhabitants of the village (N-42) – 87 years (median: 83-89 years). Recruitment of the study participants was random and voluntary, with the written consent obtained after the subject received information on the study. Three scales were used in the study: the scale of the instrumental assessment of everyday life (I-ADL, from Lawton's Instrumental Activities of Daily Living), the scale of the assessment of instrumental activities of everyday life (The Duke OARS Assessment of IADL) and the scale of assessment of basic everyday activities (ADL, Activities of Daily Living) adapted by Katz. Statistical analysis of the obtained ages was performed using the Mann-Whitney U test, the Pearson Chi-square test and the Chi-square test with the Yates correction.

Results

The functional efficiency of the seniors with respect to basic and instrumental activities of everyday life depended significantly on sex, and to the benefit of women, and equaled respectively according to ADL Lawton scale – p = 0.041241 and IADL – p = 0.037271. In the assessment according to the ADL Katz scale, this relationship was not statistically significant (p = 0.050501). The mean score obtained by the respondents according to individual scales was 0, with the median respectively 0-3 points in the IADL Lawton scale, 0-7.5 in the IADL scale and 0-5 points in the ADL Katz scale (Table I). There was also no relevant dependence on the age of the subjects (ADL Lawton scale – p = 0.1095, IADL scale – p = 0.1091, ADL Katz scale – p = 0.07054) and their place of residence (ADL Lawton scale – p = 0.19681; IADL scale – p = 0.074581; ADL Katz scale – p = 0.31861). Older women more often than men were capable of independent activities, i.e. shopping (according to ADL Lawton scale – p = 0.04693), meal preparation (according to ADL Lawton scale – p = 0.04139) and their consumption (according to ADL Katz scale – p = 0.03815), making daily cleanings (according to ADL Lawton scale -p = 0.04356), washing (according to ADL Lawton scale – p = 0.04693), using means of transport (according to ADL Lawton scale – p = 0.04693) and taking medicines (according to IADL scale) – p = 0.04412).

Table I. Characteristics of the researched group

	Women	Men	City	Village
Median (IQR - interquartile range: 25%-75%)	Median (IQR)	Median (IQR)	Median (IQR)	Median (IQR)
Age	86 (83-89)	87 (82.5-93.5)	86 (83-90)	87 (83-89)
ADL Lewton's scale	0 (0-7)	0 (0-1)	0 (0-2)	0.5 (0-3)
IADL scale	1 (0-10)	0 (0-4)	0 (0-6)	3 (0-8)
ADL Katz's scale	0 (0-6)	0 (0-1.5)	0 (0-5)	1 (0-5)

When assessing the independence of seniors in the field of instrumental activities of everyday life (IADL Lawton scale), the independence of women was found to be higher compared to men, i.e. in relation to telephone use (women: N-30; 44.8% / men: N-8; 24.2%), daily shopping (women: N-17, 25.4% / men: N-2, 6.1%), food preparation, (women: N-23; 34.3% / men: N-4, 12.2%), daily cleaning (women: N-17, 25.4% / men: N-2, 6.1%), washing (women: N-17, 25.4% / men: N-2, 6.1%), use of means of transport (women: N-17, 25.4% / males: N-2, 6.1%), taking medicines (women: N-26; 38, 8% / men: N-2, 6.1%) and money management (women: N-18, 26.9% / men: N-3, 9.1%). On the other hand, in the assessment of basic activities of everyday life, seniors showed independence according to the ADL Katz scale in the following areas: whole body bath - shower or bathtub (women: N-19, 28.4% / men: N-3, 9.1%), dressing or undressing (women: N-24, 35.8% / men: N-6, 18.2%); use of toilet (women: N-24, 35.8% / males: N-6, 18.2%), moving from bed to armchair (women: N-28, 41.8% / men: N-7 21.2%), eating meals (women: N-33, 49.3% / males: N-8, 24.2%), controlling the sphincter - urine or stool (women: N-30; 44.8% / men: N-8, 24.2%).

On taking into account the place of residence, independence according to the IADL Lawton scale concerned, respectively, the residents of the city and the residents of the village in given activities, i.e. in particular the use of the telephone: N-19; 32.8% /; N-20; 47.6% daily shopping: N-12; 20.7%; N-8 19.0%, food preparation: N-14; 24.1%; N-14; 33.3%, daily chores: N-11; 19.0%; N-9; 21.4%), washing: N-12; 20.7%; N-8 19.0%, the use of the means of transport: N-12; 20.7%; N-8 19.0%, taking own medications: N-17; 29.3%; N-16; 38.1%, and money management: N-13; 22.4%; N-9; 21.4%. Independence of seniors living in the city and in the countryside in terms of instrumental activities of everyday life was similar, while rural residents were slightly more efficient in IADL scores than people living in the city, i.e. the city residents scored on average 0 points (median: 0-6 points), village residents on average 3 points (IQR 0-8 points) (Table I). On the other hand, when assessing the independence of seniors in basic activities of daily life according to the ADL Katz scale, positive results were recorded in particular ranges: whole body bath - shower or bathtub (city: N-14, 24.1% / village: N-19, 45.2%), getting dressed or undressed (city: N-17, 29.3% / village: N-14, 33.3%); use of toilet (city: N-16, 27.6% / males: N-15, 35.7%), moving from bed to armchair (city: N-18, 31.0% / village: N-18 42.9%), eating meals (city: N-21, 36.2% / village: N-21, 50.0%), controlling sphincter - urine or stool (city: N-19, 32.8%) / men: N-20, 47.6%).

Discussion

Predictions presented by the Social Insurance Institution confirm the dynamic aging process of the Polish society. Having the year 2035 in prospect, the number of Poles aged 65+ and 80+ will be 753717 and 304211, respectively. In a study carried out in the city and the municipality of Płock as well as MałaWieś, participated 100 seniors aged 80-99, an average of 86 years. The study used the I-ADL scale according to Lawton, I-ADL according to Katz and the ADL scale. The functional efficiency of the seniors in terms of basic and instrumental activities of everyday life depended significantly on gender. Women were functionally more productive than men. This was in line with the Norwegian reports, which confirmed that women more often resigned from the help offered in everyday activities. The Norwegians, like the authors of this article, carried out research to understand the functional capacity of older people to ensure proper care for an aging society. They also confirmed that the decline in independence in terms of functioning in everyday life is reflected in the environmental functioning of older people [1].

Research, based on tools commonly used to assess seniors, identified problems concerning independent walking – 70%, bathing – 51%, which was determined by age and sex of seniors. These studies show that disability increases dramatically in a population of 90 years and more [2]. Also in our own research it was shown that the bath of the entire body was done alone by 28.4% of women and 9.1% of men. However, according to the

Swedish National Study of Aging and Care in Nordanstig (SNAC-N), the increase in disability progresses with age, mainly in women. The examined women aged 78-81 were much more likely to be exposed to an increase in disability in the assessment of ADL [3]. On the other hand, the Finns described how the efficiency of older people changes after living in a senior home, and when assessing their instrumental activities of everyday life, using I-ADL they pointed to the decreasing strength of the handshake and the speed of gait. The authors also showed that the decline in physical function negatively affects the mental state of senior citizens [4].

According to the results of the Swedish project Continuum of Care for Frail Elderly People, the appropriate stimulating interventions can increase the functional efficiency of older people [5].

The Dutch, conducting research in a group of 492 people at the age of 80 on average, showed that significantly older people obtained higher overall scores in the assessment of ADL and IADL and worse results in terms of physical activity, balance and the strength of handshake [6]. Our own studies did not show a statistically significant relationship between age and functioning with respect to basic and instrumental life activities.

The research carried out in SkÍnia confirmed that with aging, there are restrictions on the functions examined via I-ADL and ADL. The seniors were dominated by the difficulty of shopping and making meals. The poorer performance concerned men more often than women, yet these were not significant differences [5]. Similarly, in our own research it was shown that men did worse in everyday activities than women. This was also confirmed by British reports, according to which older women were more often able to perform everyday activities [7]. According to Wysokiński et al., the elderly, mainly men, most often caused difficulties: bathing, using the toilet, controlling and excreting urine, stool, and less often activities related to dressing and undressing as well as consuming meals [8]. Also, Muszalik et al., confirmed that the low assessment of ADL patients in the study indicates limited ability to function on a daily basis in an independent way and dependence on other people in specific areas of life [9].

Liang et al. pointed to the lower seniors' efficiency in the assessment by ADL, reduced cognitive ability, sensory, communication and perceptual impairment [10], while Gobbensdrew attention to the most severe activities of everyday life [11]. Adamek et al. proved that seniors had problems with repairing home appliances (88%), doing shopping (78%), cleaning and washing (76% each), cooking (73%), long walk (71%), self-taken medication (51%), money management (46%) and telephone use (27%) [12]. Also Rybka et al. assessed the changes in functional efficiency in terms of basic and instrumental activities in seniors stating that patients coped with self-management and controlled excretion of urine and stool (0.98 ± 0.14), while most seniors showed reliance on care while bathing (42.00%), dressing and undressing (40.00%) [13]. Brtoszek et al. proved that as to basic life activities (ADL), 42% of seniors were in good condition, and 29% of respondents showed moderate and significant impairment of functional efficiency [14]. Similar results were obtained by Haor et al. [15] and Kuliński [16]. In own studies, women turned out more independent during bathing (28.4%) in comparison with men (9.1%), similarly in the use of the toilet alone (35, 8% of women and 18.2% of men) and in self-consumption of meals (49.3% women and 24.2% men). According to thematic reports, with ageeveryday life condition in older people deteriorates [17].

Conclusions

1. The simultaneous application of three scales to the assessment of everyday activities enabled a comprehensive assessment of this range of functional efficiency of seniors due to the complementary nature of the criteria evaluated according to these scales.
2. After the age of 80, the functional efficiency of seniors with regard to everyday activities does not change statistically significantly, however, in the study group, men were older by an average of one year than the surveyed women and showed less independence in everyday life.
3. Analyzed seniors' efficiency is not radically different from the nationwide one, therefore it is necessary to take dynamic actions for the implementation of geriatric care in this region.

Conflict of interest
None

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