

Functional ability of elderly people living in their home environment according to the NOSGER

Wydolność funkcjonalna seniorów w środowisku domowym wg skali NOSGER

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Abstract

Introduction. Ageing is an inevitable phase of human life and results in changes affecting all the areas of elderly people's life. This phase is characterised by susceptibility to diseases, poor resourcefulness, low physical fitness and total lack of independence. **Purpose of the study.** The purpose of the present study was to determine the functional ability of elderly people living in their home environment by means of the NOSGER (Nurses' Observation Scale for Geriatric Patients). **Material and methods.** 100 people (77 women and 23 men) aged 75 and above participated in the study, which was conducted in the Folk-Med health centre in Białogard between May and July 2017 after the Bioethical Committee of Bydgoszcz Collegium Medicum affiliated to The Nicolaus Copernicus University in Toruń had granted their consent to the study. The diagnostic survey method and the NOSGER questionnaire were used. **Results.** The elderly people with primary and vocational education who had failed to assess their health state properly had poorer functional ability in the following areas: instrumental daily living activities, social behaviour, and mood and emotions. **Conclusions.** The functional ability of elderly people living in their home environment is influenced by many factors, including age, gender, education, place of residence, health self-assessment as well as living with another family member. The abovementioned factors usually overlap, which significantly affects the functioning of the elderly in their home environment. (*Gerontol Pol* 2017; 25: 242-247)

Key words: elderly people, functional ability, home environment

Streszczenie

Wstęp. Proces starzenia się jest nieuchronnym etapem życia i niesie za sobą zmiany we wszystkich obszarach funkcjonowania człowieka. Okres ten wiąże się z powszechnie występującą chorobowością, mniejszą zaradnością, słabnącą sprawnością fizyczną, często z zupełnym brakiem samodzielności. **Cel.** Celem niniejszej pracy było określenie wydolności funkcjonalnej seniorów w środowisku domowym przy pomocy skali NOSGER. **Material i metody.** Badaniem objęto 100 seniorów (77 kobiet i 23 mężczyzn) w wieku powyżej 75 lat. Badanie przeprowadzono w okresie maj-lipiec 2017 r. w przychodni Folk-Med. Sp. z o.o. NZOZ w Białogardzie, na bazie zgody Komisji Bioetycznej Collegium Medicum w Bydgoszczy UMK w Toruniu. Wykorzystano metodę sondażu diagnostycznego z zastosowaniem kwestionariusza skali NOSGER. **Wyniki.** Wraz z wiekiem osoby posiadające niższe wykształcenie i źle oceniające swój stan zdrowia reprezentowały gorszy stan

funkcjonalny w zakresie: instrumentalnych aktywności codziennego życia, zachowań socjalnych, nastrojów i stanów emocjonalnych. **Wnioski.** Na wydolność funkcjonalną seniorów w warunkach domowych wpływa wiele czynników, m.in. wiek, płeć, wykształcenie, miejsce zamieszkania, samoocena własnego stanu zdrowia a także mieszkanie z innym członkiem rodziny. Powyższe czynniki najczęściej się na siebie nakładają, co w znaczny sposób wpływa na funkcjonowanie seniorów w warunkach domowych. (*Gerontol Pol 2017; 25: 242-247*)

Słowa kluczowe: osoby starsze, wydolność funkcjonalna, środowisko domowe

Introduction

An elderly person's functional ability is his or her ability to perform activities of daily living in a safe and independent manner without excessive effort. Today, the assessment of elderly people's functional ability is the fundamental challenge for and the main aim of geriatrics. A higher level of functional ability positively influences elderly people's quality of life as well as their physical and mental state, which can result in extending their lifespan. A lower level of functional ability leads to a number of complications initially manifesting themselves in the form of minor deficiencies which later on become severer and result in a total loss of independence [2,3].

Purpose of the study

The purpose of the present study was to assess the functional ability of elderly people living in their home environment by means of the NOSGER (Nurses' Observation Scale for Geriatric Patients).

Material and methods

100 elderly people aged 75 and above participated in the study. The majority of them were women (77%), people with primary education (62%), those aged 81-89 (55%), widows and widowers (61%), city inhabitants (86%), and people living on their own (67%). What characterised the respondents were their multiple morbidities; 33% of the elderly people had at least three co-existing diseases.

The study participants were chosen at random, and they participated in the study of their own free will. All the respondents had submitted their declarations concerning their general practitioners and family nurses. The diagnostic survey was conducted in the elderly people's home environment between May and July 2017 after the Bioethical Committee of Bydgoszcz Collegium Medicum affiliated to The Nicolas Copernicus University in Toruń had granted their consent to the study. The authors of the study used their own questionnaire and the NOSGER questionnaire.

Table I. Characteristics of the study group

	Variable	N	%
Gender	women	77	77.0
	men	33	33.0
Age	75-80 lat	26	26.0
	81-90 lat	55	55.0
	90 and more years	19	19.0
Marital status	married	34	34.0
	widowed	61	61.0
	singles	5	5.0
Education	basic	62	62.0
	professional	11	11.0
	average	17	17.0
	higher	10	10.0
Lives	alone	33	33.0
	with family	67	67.0
Place of living	in the city	86	86.0
	in the village	14	14.0

The correlation of the variables was calculated by means of Spearman's rank correlation coefficient. The Statistica 10.0 program and Microsoft Excel spreadsheet were used to make all the calculations and figures.

Results

According to the NOSGER, the respondents' average score was 57.65 points, which evidences their good physical and psychosocial condition (score ≤ 60 points). 38% of the respondents had disorders; their average score was over 60 points.

Taking into consideration the scale areas, the best score was obtained in the area of daily living activities [ACŻ] (average of 7.96 points) and the area of destructive, disturbing and asocial behaviour [Z] (average of 8.51 points). The worst score was achieved in the following areas: instrumental daily living activities [IACŻ] (average of 10.94 points) and social behaviour [S] (average of 12.22 points). Due to the significance level ($p > 0.05$), no statistically significant differences were noted between the men and women in terms of the NOSGER score or its areas.

The men obtained better score than women in the majority of the areas, except for the areas of mood and emotions [NE] as well as destructive, disturbing and asocial behaviour.

The respondents' education had a statistically significant, average correlation with the NOSGER score, instrumental daily living activities as well as mood and emotions. Their education had a low correlation with the daily living activities, memory [P], and social behaviour ($p < 0.05$).

The lowest average score was noted among the respondents with higher education (43.90 points) and secondary education (44.47 points), while the highest score was noted among those with vocational secondary education (68.36 points). The respondents with higher education obtained the best average score in the areas of social behaviour as well as destructive, disturbing and asocial behaviour. The best score in the remaining areas was achieved by the elderly people with secondary education.

The respondents' age had a statistically significant, average correlation with all the NOSGER areas and its general results ($p < 0.05$).

The elderly people aged 75-80 were in the best state of health (44.38 points), whereas those aged 90 and above were in the worst state of health (76.79 points). The respondents aged 75-80 obtained the best average results in all the scale areas, while those aged 90 and above achieved the worst results.

Some statistically significant differences concerning the NOSGER and its areas were noted between city and rural inhabitants: memory, instrumental daily living activities, daily living activities as well as mood and emotions ($p < 0.05$).

City inhabitants had fewer disorders (55.22 points) than rural inhabitants (72.57 points). The former obtained better results than the latter in all the NOSGER areas in question.

No statistically significant differences were noted between the respondents living with their family members and those living on their own ($p > 0.05$).

The respondents living on their own achieved slightly better results (53.82 points) than those living with their families (59.54 points) in all the NOSGER areas in qu-

Table II. Values of the NOSGER areas

Area	Average	SD	Confidence -95.0%	Confidence +95.0%
P – memory	9.04	4.18	8.21	9.87
IACŻ – instrumental daily living activities	10.94	5.38	9.87	12.01
ACŻ – daily living activities	7.96	4.50	7.07	8.85
NE – mood and emotions	8.98	3.49	8.29	9.67
S – social behaviour	12.22	4.51	11.32	13.12
Z – destructive, disturbing and asocial behaviour	8.51	2.43	8.03	8.99
NOSGER	57.65	21.88	53.31	61.99

estion, except for the area of destructive, disturbing and asocial behaviour.

The respondents' self-assessment of their health state had a statistically significant, average correlation with the NOSGER results and all its areas ($p < 0.05$).

The lowest average score was noted among the respondents who assessed their health state as good (39.70 points), while the highest average score was noted among those who assessed their health state as bad (79.37 points). The respondents whose state of health was good obtained the best average results in all the NOSGER areas, and the worst average results were achieved by those whose state of health was bad.

Discussion

In terms of the NOSGER areas, the elderly people achieved the best results in the areas of daily living activities [ACŻ] as well as destructive, disturbing and asocial behaviour [Z]. They obtained the worst results in the areas of instrumental daily living activities [IACŻ] and social behaviour [S]. Due to the significance level ($p > 0.05$), no statistically significant differences were noted between the men and women in terms of the NOSGER results or its areas. However, the respondents' education had a statistically significant, average correlation with the NOSGER score, instrumental daily living activities as well as mood and emotions. Their education had a

Table III. Sociodynamic variables and mean values of NOSGER scales

	Variable	NOSGER	ACŻ	IACŻ	NE	Z	S	P
gender	women	57.97 ± 22.59	8.08 ± 4.68	11.22 ± 5.57	8.88 ± 3.48	8.35 ± 2.28	12.36 ± 4.63	9.08 ± 4.33
	men	56.57 ± 19.73	7.57 ± 3.88	10.00 ± 4.68	9.30 ± 3.59	9.04 ± 2.87	11.74 ± 4.15	8.91 ± 3.73
	statistical analysis	Z = -0.066 p = 0.948	Z = -0.041 p = 0.967	Z = 0.676 p = 0.499	Z = -0.569 p = 0.569	Z = -1.118 p = 0.264	Z = 0.516 p = 0.606	Z = -0.332 p = 0.740
age	75-80 lat	44.38 ± 17.59	5.92 ± 3.37	7.69 ± 6.63	7.04 ± 2.52	7.65 ± 2.70	9.31 ± 2.46	6.77 ± 3.33
	81-90 lat	57.31 ± 19.12	7.65 ± 3.92	10.62 ± 4.96	9.20 ± 3.50	8.67 ± 2.17	12.31 ± 4.14	8.85 ± 3.77
	90 and more years	76.79 ± 21.56	11.63 ± 5.38	16.32 ± 4.60	11.00 ± 3.42	9.21 ± 2.57	15.95 ± 4.12	12.68 ± 4.06
	statistical analysis	t = 6.418 p = 0.000	t = 6.051 p = 0.000	t = 6.054 p = 0.000	t = 4.471 p = 0.000	t = 3.136 p = 0.002	t = 5.666 p = 0.000	t = 5.887 p = 0.000
education	basic	61.58 ± 22.97	8.60 ± 4.96	12.10 ± 5.50	9.60 ± 3.50	8.66 ± 2.59	12.94 ± 4.53	9.69 ± 4.43
	professional	68.36 ± 20.30	9.18 ± 5.12	13.73 ± 5.08	10.36 ± 3.83	9.18 ± 2.36	15.00 ± 3.41	10.91 ± 4.64
	average	44.47 ± 12.83	5.88 ± 1.83	7.06 ± 2.73	6.82 ± 2.67	8.12 ± 2.12	10.00 ± 3.92	6.59 ± 1.87
	higher	43.90 ± 12.35	6.20 ± 2.15	7.30 ± 3.09	7.30 ± 2.31	7.50 ± 1.84	8.50 ± 2.64	7.10 ± 2.56
	statistical analysis	t = -3.324 p = 0.001	t = -2.293 p = 0.024	t = -3.999 p = 0.000	t = -3.228 p = 0.002	t = -1.033 p = 0.304	t = -3.008 p = 0.003	t = -2.603 p = 0.011
lives	alone	53.82 ± 19.93	7.39 ± 4.02	9.55 ± 4.54	8.42 ± 3.34	8.67 ± 2.67	11.67 ± 4.44	8.12 ± 3.53
	with family	59.54 ± 22.68	8.24 ± 4.72	11.63 ± 5.66	9.25 ± 3.56	8.43 ± 2.32	12.49 ± 4.56	9.49 ± 4.42
	statistical analysis	Z = 1.254 p = 0.210	Z = -0.891 p = 0.373	Z = -1.688 p = 0.095	Z = 1.166 p = 0.244	Z = -0.268 p = 0.789	Z = 0.869 p = 0.385	Z = 1.389 p = 0.165
place of living	in the city	55.22 ± 19.76	7.44 ± 3.92	10.41 ± 4.97	7.83 ± 2.22	8.34 ± 2.36	11.87 ± 4.27	8.59 ± 3.85
	in the village	72.57 ± 28.52	11.14 ± 6.37	14.21 ± 6.73	8.12 ± 3.09	9.57 ± 2.65	14.36 ± 5.49	11.79 ± 5.18
	statistical analysis	Z = -1.962 p = 0.050	Z = -2.171 p = 0.030	Z = -2.190 p = 0.028	Z = 0.130 p = 0.904	Z = -1.758 p = 0.079	Z = -1.634 p = 0.102	Z = -2.156 p = 0.031

Table IV. Average NOSGER score – groups of health self-assessment

Health state	Good		Medium		Bad	
	Average	SD	Average	SD	Average	SD
P	6.40	1.78	7.90	2.96	12.67	5.02
IACŻ	6.60	2.50	9.41	4.15	16.11	5.14
ACŻ	5.10	0.32	6.90	2.90	11.48	6.18
NE	6.60	1.78	7.83	2.37	12.56	3.64
S	8.10	1.91	11.02	3.49	16.56	4.20
Z	6.90	1.37	8.13	2.11	10.00	2.75
NOSGER	39.70	6.86	51.19	15.02	79.37	23.51

low correlation with the daily living activities, memory [P], and social behaviour ($p < 0.05$).

As far as the respondents' age is concerned, it had a statistically significant, average correlation with all the NOSGER areas and its general results ($p < 0.05$). The lowest average score was noted among the respondents aged 75-80, while the highest average score was noted among those aged 90 and above. The respondents aged 75-80 obtained the best average results in all the NOSGER areas, while those aged 90 and above achieved the worst results. Due to the significance level ($p < 0.05$), some statistically significant differences concerning the NOSGER and its areas were noted between city and rural inhabitants: memory, instrumental daily living activities, daily living activities as well as mood and emotions. No statistically significant differences were noted between the respondents living with their family members and those living on their own.

For comparison, the study data collected in the provinces of Lublin, Podlasie and Podkarpacie showed some correlations, too. Assessing elderly people's health and psychosocial condition, this survey-based study was conducted among 132 people aged 65 and above living in their home environment. They were surveyed by means of the NOSGER; 71.2% of them were classified as healthy (their score was below 60 points) and 28.8% of them had disorders (their score was above 60 points). The average score was 54.12 points, which was interpreted as the medium level of physical and psychosocial ability [2]. The elderly people's functioning with reference to the NOSGER areas was also analysed. The best results were achieved in the areas of daily living activities (average of 7.0) and memory (average of 8.09). The average for the area of destructive and disturbing behaviour was 8.88, while in the area of emotions and mood – 9.53. The worst results were obtained in the areas of instrumental daily living activities (average of 10.0) and social behaviour (average of 10.63) [2]. The men had worse results (average of 56.80) than the women (average of 52.22). In terms of the particular NOSGER areas, the results were as follows: (i) memory – men's average of 8.46; women's average of 7.80; (ii) daily living activities – men's average of 7.72; women's average of 6.49; (iii) instrumental daily living activities – men's average of 10.21; women's average of 9.84; (iv) emotions and mood – men's average of 9.65; women's average of 9.45; (v) social behaviour – men's average of 11.70; women's average of 9.81; (vi) destructive and disturbing behaviour – men's average of 9.00; women's average of 8.80. The analysis revealed no statistically significant correlation between the elderly people's functional ability and their sex ($p > 0.05$). Regarding their marital

status, the married people (average of 51.16) as well as widows and widowers (average of 55.13) had the best results. The memory assessment showed that the best results were obtained by the married people (average of 7.58) as well as divorced ones and widows and widowers (8.80 and 8.82 respectively). The respondents who were single had the worst results (average of 10.12) [2]. The married people (average of 6.86) as well as widows and widowers (average of 6.90) had the highest functional ability in the area of daily living activities. The divorced people had the worst results here (average of 7.73). The social behaviour assessment showed that the married people (average of 10.15) as well as widows and widowers (average of 10.59) had the highest functional ability. The divorced ones had the worst results here (average of 12.26). In terms of the area of mood and emotions, the married people had the best results (average of 8.60). Similar results were obtained by the widows and widowers as well as divorced ones (10.22 and 10.73 respectively). In the area of destructive/disturbing behaviour, the married people as well as widows and widowers had the highest functional ability (8.50 and 8.95 respectively). The divorced people and single ones had worse results (9.60 and 10.25 respectively). This analysis revealed a statistically significant correlation ($p < 0.05$) between the patients' NOSGER assessment and their marital status. However, no statistically significant correlation ($p > 0.05$) was noted between the elderly people's NOSGER assessment and their education [2].

Some NOSGER assessment was also done among 150 patients aged 65 and above who were hospitalised in four internal medicine wards in Lublin. The average score was 57.23 out of 150 points. The analysis showed a significant correlation between the NOSGER functional ability assessment and the elderly people's age, except for the area of emotions and mood. The surveyed men aged 65 and above functioned in a significantly better way in terms of daily living activities than the women did. The surveyed people with primary and vocational education had a significantly worse functional ability in almost all of the NOSGER areas as compared to the people with higher and secondary education. The statistical analysis showed significant differences in the functional ability assessment in the areas of memory, daily living activities, social behaviour, instrumental daily living activities, emotions and mood as well as the general NOSGER assessment. No significant differences were noted in terms of the destructive behaviour assessment. The widows and widowers as well as single people had a significantly worse functional ability than the married ones. The analysis showed significant differences between the groups in terms of all of the NOSGER areas

except for the area of destructive behaviour. Also, the analysis revealed that the people who suffered from one disease had a better functional ability than those who suffered from two or more diseases; significant differences were noted in the assessment of all the areas except for the area of destructive behaviour. The differences in the area of emotions and mood were close to the significance level [5,6].

Today, research into elderly people's functional ability is carried out on a large scale. There are numerous research and assessment tools which are being enhanced in terms of the measuring methods. The obtained research results considerably influence the development of geriatrics and can be used in everyday prevention and therapeutic practice, including care of the elderly. This research is also important in terms of shaping our social policy to the benefit of elderly people [4,7-10].

Because of the unique nature of the process of ageing, the assessment of elderly people's functional ability needs to be multidimensional. It cannot be based on the surveyed people's answers only, but it must also be based on careful and detailed observation [1].

Conclusions

1. The elderly people obtained the best results in the areas of daily living activities (*ACŻ*) and destructive, disturbing and asocial behaviour (*Z*), while the worst results were achieved by them in the areas of instrumental daily living activities (*IACŻ*) and social behaviour (*S*).
2. The elderly people's health state assessed according to the NOSGER depended in a statistically significant way on their age, education, and health self-assessment.
3. The elderly people with primary and vocational education who had failed to assess their health state properly had poorer functional ability in the following areas: instrumental daily living activities, social behaviour, and mood and emotions.

Conflict of interest

None

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