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Article

Assessment of Dementia Risk and Health-Related Quality of Life in Patients Hospitalised in Geriatric Wards

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Abstract

Background: Dementia is a common disease in the elderly, and its prevalence continues to increase worldwide. A significant proportion of patients with dementia are hospitalised due to comorbidities. Health-related quality of life (HRQoL) reflects overall health and is used in clinical trials, economic evaluations, and population health studies. The aim of this study was to assess the risk of depression and quality of life related to the health status of patients hospitalised in geriatric wards. **Methods:** The study was conducted in geriatric wards of hospitals in the Lublin Region. A total of 308 patients aged 65-98 years participated in the study. **Results:** The NOSGER scale evaluation of patients was at the average level of 75.82 points. The seniors surveyed functioned best in the area of disruptive behaviours (average 9.45 points), and the greatest deficits were found in the area of instrumental activities of everyday life (15.95 points). The cohort of patients assessed their overall quality of life at the average level of 3.16 ± 0.78 points and ~~their~~ health status at 2.44 ± 0.77 points. The highest scores were given to the social domain (59.52 ± 13.69) and the environmental domain (56.96 ± 1.95). **Conclusions:** The study group of patients hospitalised in geriatric wards showed a moderate risk of dementia. In areas relevant to the diagnosis of such changes (memory, emotions, disruptive behaviours), patients functioned at a fairly good level. The quality of life of the patients was assessed as poor. The level of psychophysical functioning had a significant impact on the perceived quality of life of the patients hospitalised in geriatric wards.

Keywords: dementia; health-related quality of life; geriatric patient; geriatric ward

1. Introduction

Ageing is the greatest risk factor for most chronic diseases, including cardiovascular disease, cancer, osteoporosis, arthritis, diabetes and neurodegenerative diseases such as dementia. Neurodegenerative diseases typically feature cellular and metabolic processes that accelerate in old age [1].

Dementia is a common disease in the elderly , and its prevalence continues to increase worldwide. A significant proportion of patients with dementia are hospitalised due to comorbidities. The proportion of patients with dementia ranges from 4 to 30% among patients discharged from

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general hospitals [2–6]. A multifactorial process that is always associated with cognitive decline and functional impairment, dementia has been found to be generally associated with higher hospital admission rates, longer hospital stays, and increased risk of mortality after admission, both in hospital and in home care [4]. As the disease progresses, people with dementia experience gradual dysfunction and loss of personal autonomy in addition to cognitive impairment. The diagnosis of dementia requires fulfilling criteria such as a loss of functional reserve and a decline in functional status, as well as memory impairment and/or other cognitive functions. Functional independence is an important component of the quality of life from the perspective of the elderly. Showing functional decline, the elderly experience various negative effects, such as higher rates of hospital use, placement in care facilities and increased risk of death [3].

Dementia is the acquired loss of cognitive functions in multiple cognitive domains, severe enough to affect social or occupational functioning. The diagnosis of dementia requires recording a history of cognitive decline and impairment in daily activities, confirmed by a close friend or a family member, as well as a thorough mental status examination by a physician in order to determine memory, speech, attention, and mood impairments. Short screening questionnaires for cognitive impairment can help initiate and organise cognitive assessment. Nonetheless, if the assessment is inconclusive (e.g. symptoms are present but test results are normal), neuropsychological tests can help determine whether dementia is present. A physical examination may also help determine the aetiology of dementia [2].

Health-related quality of life (HRQL) is an indicator of a person's overall health and can be used in various contexts, such as clinical trials, economic evaluations of healthcare, or population health studies. There are many different concepts of HRQL, however, the one proposed by Patrick and Erikson is among the most frequently cited [5]. Patrick and Erikson defined HRQL as 'the value attributed to life expectancy modified by impairments, functional states, perceptions and social capabilities affected by diseases, injuries or treatments'[6]. Over the years, several models have been proposed to address this multidimensional concept [7–9], but it is the Wilson and Cleary model that is most widely used. The model comprises five domains, namely: biological variables, symptom status, functional status, overall health perception and overall quality of life. Moreover, it also takes into account individual and environmental characteristics. Each of the five domains has a direct impact on the next domain (i.e. biological variables influence symptom status, which in turn influences functional status, etc.), while environmental and individual factors influence all domains except biological variables [9]. Ferrans et al. proposed a modified version of the said model, recognising that environmental and individual characteristics actually influence all five domains [7].

Quality of life (HRQL), as a multifaceted and complex concept, can therefore be shaped by many factors, such as socio-demographic characteristics, chronic diseases, functional status, social network, or neighbourhood environment [10–15].

The aim of this study was to assess the risk of depression and quality of life related to the health status of patients hospitalised in geriatric wards.

2. Materials and Methods

2.1. Study Organisation and Participants

The study was conducted in geriatric wards of hospitals in the Lublin Region (Poland). A total of 308 patients aged 65-98 years participated in the study. Inclusion criteria: - age 65 and over, informed consent from the patient, hospitalisation in a geriatric ward in the Lublin Voivodeship. Exclusion criteria: age under 65, lack of consent from the patient, hospitalisation in a ward other than a geriatric.

2.2. Method

The research material was collected using the NOSGER tool (Nurses' Observation Scale for Geriatric Patients). This questionnaire enables professional and non-professional senior caregivers to

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assess the physical, mental, and social condition of the patient quickly and easily. The scale consists of 30 questions and covers six dimensions: Memory; Instrumental Activities of Daily Living (IADL), Activities of Daily Living (ADL); Mood; Social Behaviour; Disturbing Behaviour. Scale values are specified by numbers: from 1 (always) to 5 (never). A patient can receive a minimum of 30 points and a maximum of 150 points. The patient can gather between 5 and 25 points in each of the individual areas of the scale. The greater the number of points obtained in the observation, the worse the patient's condition [16,17].

Available source materials show that the NOSGER scale first appeared in Polish literature in 2005. It was appropriately described and its Polish translation was presented in Liszewska's work. When starting research using the NOSGER scale, the authors first obtained consent from the creators of the tool to use it. Regardless of the existence of the Polish version of the scale, the authors decided to translate it from the original version again. Thus, the version of the scale developed by Fidecki et al. was used in this research [18].

The reliability of the tool used in the research group of 308 elderly patients was checked by Cronbach's alpha coefficient, which was 0.844 for NOSGER-total, 0.807 for ADL, 0.863 for IADL, 0.642 for Mood, 0.716 for Disturbing Behaviour, 0.870 for social behaviour and 0.956 for memory.

Although numerous geriatric assessment tools exist, they usually assess an elderly person only in part, not providing a comprehensive picture of the elderly person's condition. The NOSGER (Nurses' Observation Scale for Geriatric Patients) scale seems to be an interesting proposal with which it is possible to assess the functional status of an elderly patient. The authors of the scale noticed that there was a lack of a suitable tool that would facilitate a quick and accurate assessment of the condition of a geriatric patient. The researchers intended such a tool to enable the assessment of behaviour in areas relevant to the daily life of the patient and their careers. It would be applicable to patients in institutional care as well as in the home environment, and could be used by both professionals and non-professionals. It would assess areas that may change over time as a result of the treatment used or the course of the disease. In creating the scale, the authors drew on their own clinical experience and an analysis of other geriatric assessment tools currently available. The NOSGER scale was created primarily for the behavioural assessment of geriatric patients. However, the authors of the following studies have attempted to extend the use of the NOSGER scale to the general population of the elderly, including those living in their home environment. The existing global and Polish experience with the NOSGER scale allows us to conclude that this scale can easily be applied in broadly understood geriatric care, both professional and non-professional. It is worth emphasising that the ease of assessment is so important in the era of ageing societies and in the development of a home geriatric care model. Not only does such a model reduce economic costs, but above all increases the comfort of an elderly person's life in a broad sense. It is important to be aware that NOSGER is a ‘first-line’ scale in patient assessment and if there are any doubts about the assessment, a more thorough assessment should be carried out using specific tools [18].

The second tool used in the study was the standardised WHOQOL-Bref questionnaire. The Polish version of the WHOQOL-Bref questionnaire developed by Wołowicka, Jaracz et al. was used in the study. This tool was designed for assessing quality of life in both healthy and sick people, for both research and clinical purposes. The questionnaire consists of 26 questions and facilitates obtaining a quality of life profile within the scope of four domains: physical, psychological, social and environmental. Two questions are analysed separately: question 1 referring to individual, general perception of one's quality of life and question 2 referring to individual perception of one's health. The scoring system is positive – i.e. the more points, the higher the quality of life. Answers are given according to Likert’s 5-grade scale. Having been calculated according to the key, arithmetic means of scores obtained in the questionnaire range from 0 to 100 for each of the four domains and from 1–5 for the two questions: the former referring to general quality of life and the latter referring to health satisfaction [19].

2.3. Ethical Statement

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The study was conducted in accordance with the requirements of the Helsinki Declaration. All participants were informed about the purpose of the study and took part voluntarily and consciously. The study was conducted having obtained the consent of the Bioethics Committee at the Medical University of Lublin (Resolution No. KE-0254/45/02/2023).

2.4. Statistical Analysis

Statistical analysis and database were performed using Statistica 9.1 software (StatSoft, Poland). The results obtained in the analysis of quantitative variables are presented using the mean, median and standard deviation, and in the analysis of qualitative variables using frequency and percentage. The normality of the distribution of variables was tested using the Shapiro-Wilk normality test. Differences between groups were assessed using the Mann-Whitney test for two groups, and in the case of three or more groups, ANOVA analysis (together with Tukey's post-hoc RIR test) was performed. If the requirements for its use were not met, the Kruskal-Wallis test was used. Pearson's correlation coefficient was employed to determine the level of dependence between variables. In the statistical analysis, a significance level of $p < 0.05$ was adopted to determine the occurrence of statistically significant dependencies or differences.

3. Results

3.1. Sociodemographic Analysis of the Study Group

The characteristics of the study group are presented in Table 1. The study involved 308 patients, the majority of whom were women (63.97%).

Table 1. Sociodemographic analysis of the study group.

Variable		N	%
Gender	Female	197	63.97
	Men	111	36.03
Age (years)	65-74	66	21.43
	75-89	217	70.45
	90 -98	25	8.12
Marital status	Widowers/Widows	204	66.23
	Married	104	33.77
Education	Primary	241	78.25
	Vocational	42	13.66
	Secondary	21	6.82
	Higher	4	1.27

3.2. NOSGER Scale Evaluation

The analysis of the study results is presented in Table 2. The NOSGER scale evaluation of patients was at the average level of 75.82 points. The seniors surveyed functioned best in the area of disruptive behaviours (average 9.45 points), and the greatest deficits were found in the area of instrumental activities of everyday life (15.95 points).

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Table 2. NOSGER scale evaluation.

NOSGER scale	M	SD	Me	Min	Max
NOSGER total	75.82	23.51	74.00	30.00	134.00
Activities of everyday life	11.91	5.21	11.00	5.00	24.00
Instrumental activities of everyday life	15.95	5.47	16.00	5.00	25.00
Mood	12.13	3.54	12.00	5.00	22.00
Disruptive behaviors	9.45	3.45	9.00	5.00	25.00
Social behavior	14.16	5.22	13.00	5.00	25.00
Memory	12.19	4.39	12.00	5.00	25.00

M—mean; SD—standard deviation; Me—median.

The analysis also included an assessment of patients according to selected sociodemographic variables (Table 3). When comparing the performance of the subjects by gender, it was found that men functioned slightly worse (average 77.41 points). Men were also rated worse in the component areas, with the exception of memory, where the results were similar (men 12.18 points vs. women 12.19 points). In none of the analysed areas was the difference statistically significant ($p > 0.05$).

When assessing the functional fitness of seniors using the NOSGER scale according to their age, people in the oldest age group were found to have the greatest functional fitness deficits (90.80 points). People aged 75-89 scored the average of 75.42 points. The best functional fitness was observed in people aged 65-74 (71.45 points). The statistical analysis showed a significant difference between the groups in all areas except Mood ($p = 0.725$).

The results were analysed according to the marital status of the patients. Widowed people (78.78 points) showed poorer functional fitness than married people (70.00 points). Widowed people also had lower functional fitness in each of the component areas. Based on the statistical analysis, it was shown that the difference between married and widowed people was significant in each area except for behavioural disorders ($p = 0.140$).

In the next stage of the study, the level of patients' functioning was analysed according to their level of education. According to the NOSGER scale, the lowest level of functioning was found in patients with vocational education (82.50 points). On the other hand, seniors with secondary/higher education showed the best performance within the study group (61.36 points). When analysing patients' scores in individual areas of the NOSGER scale, the greatest deficits were also found in people with vocational education. Based on the statistical analysis, a significant difference between the studied groups was found.

The last issue analysed was the determination of the level of functioning of patients depending on their place of residence.

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Table 3. Sociodemographic variables and NOSGER scale evaluation (mean ± standard deviation).

	Variables	NOSGER	Activities of everyday life	Instrumental activities of everyday life	Mood	Disruptive behaviors	Social behavior	Memory
Gender	Female	74.92±23.05	11.65±5.20	15.71±5.39	12.08±3.43	9.29±3.51	13.97±4.96	12.19±4.34
	Men	77,41±24.34	12.37±5.22	16.38±5.60	12.25±3.74	9.73±3.34	14.49±5.66	12.18±4.51
	Statistical analysis	*Z=-1.026 p=0.304*	*Z=-1.204 p=0.228*	*Z=-1.107 p=0.268*	*Z=-0.418 p=0.675*	*Z=-1.567 p=0.116*	*Z=-0.742 p=0.457*	*Z=-0.279 p=0.779*
Age	65-74 years old	71.45±23.00	10.59±5.20	14.50±5.52	12.09±3.30	9.12±3.24	13.77±5.38	11.37±3.91
	75-89 years old	75.42±22.91	11.90±5.09	16.00±5.32	12.09±3.59	9.30±3.28	13.94±5.04	12.15±4.40
	90-96 years old	90.80±25.02	15.48±4.75	19.32±5.27	12.56±3.78	11.64±4.67	17.08±5.62	14.72±4.79
	Statistical analysis	*H=11.359 p=0.034*	*H=16.253 p=0.0003*	*H=14.595 p=0.007*	*H=0.642 p=0.725*	*H=7.163 p=0.027*	*H=7.481 p=0.023*	*H=10.172 p=0.006*
Marital status	Married	70.00±22.68	10.80±5.13	14.84±5.57	11.44±3.75	8.92±2.85	12.72±5.14	11.26±4.24
	Widowed	78.78±23.43	12.48±5.17	16.51±5.34	12.48±3.38	9.73±3.70	14.90±5.12	12.66±4.41
	Statistical analysis	Z=3.081 p=0.002	Z=2.742 p=0.006	Z=2.453 p=0.014	Z=2.334 p=0.019	Z=1.473 p=0.140	Z=3.525 p=0.000	Z=2.678 p=0.007
Education	Elementary	76.15±23.02	11.93±5.18	16.20±5.36	12.12±3.35	9.31±3.44	14.19±5.17	12.39±4.37
	Vocational	82.50±27.03	13.14±5.78	16.61±6.00	13.35±4.19	10.90±3.74	15.52±5.84	12.95±4.61
	Secondary/Higher	61.36±15.11	9.64±3.68	12.44±4.41	10.20±3.35	8.44±2.21	11.60±3.57	9.04±2.89
	Statistical analysis	*H=12.404 p=0.002*	*H=6.133 p=0.046*	*H=11.571 p=0.003*	*H=10.839 p=0.004*	*H=12.352 p=0.021*	*H=8.268 p=0.016*	*H=15.818 p=0.0004*

Z-Mann-Whitney U test; H-Kruskal-Wallis test.

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3.3. Assessment Using the WHOQOL-Bref Questionnaire

The results of this study showed that the cohort of patients assessed their overall quality of life at the average level of 3.16 ± 0.78 points and their health status at 2.44 ± 0.77 points. The highest scores were given to the social domain (59.52 ± 13.69 points) and the environmental domain (56.96 ± 1.95 points). In the psychological domain, the score was 45.30 ± 13.54 points. The lowest scores were given to the somatic domain (37.85 ± 16.73). A detailed assessment of quality of life is presented in Table 4.

Table 4. Assessment of patients using the WHOQOL-Bref questionnaire.

Quality of life	M	SD	Min	Max
Subjective quality of life assessment	3.16	0.78	1.00	5.00
Subjective health state assessment	2.44	0.77	1.00	5.00
Somatic sphere	37.85	16.73	0.00	81.00
Psychological sphere	45.30	13.54	6.00	81.00
Social sphere	59.52	13.69	6.00	100.00
Environmental sphere	56.96	12.22	25.00	94.00

M—mean; SD—standard deviation.

Table 5 presents the results of the WHOQOL-Bref questionnaire depending on the analysed variables. When analysing the quality of life depending on the gender of the respondents, it was found that men rated their health (2.48 points) and all four spheres of quality of life slightly higher than women. Women rated only their overall quality of life slightly better (3.16 points). However, this difference was statistically significant only in the environment domain (p=0.030).

Age did not significantly differentiate the quality of life assessments of the surveyed seniors. However, the youngest age group (65-74 years) rated their quality of life the highest. The assessment of quality of life decreased with age. In the 90-96 age group, this assessment was at its lowest level. Older people who were married reported a better quality of life in all areas. In contrast, widowed people reported a lower quality of life. This difference was statistically significant in the psychological (p=0.002) social (p = 0.000) and environmental (p = 0.010) domains.

The last issue analysed was the determination of the quality of life depending on patients' level of education. Those with primary education were most satisfied with their health (2.48 points). In the assessment of quality of life and the four domains of the WHOQOL-Bref scale, the highest scores were obtained in the group of patients with secondary/higher education. The level of education significantly differentiated the quality of life of older people only in the somatic domain (p = 0.022).

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Table 5. Sociodemographic variables and WHOQOL-Bref questionnaire evaluation (mean ± standard deviation).

	Variables	Subjective quality of life assessment	Subjective health state assessment	Somatic sphere	Psychological sphere	Social sphere	Environmental sphere
Gender	Female	3.16±0.80	2.42±0.72	37.61±15.74	45.13±13.72	59.06±14.30	55.81±11.82
	Men	3.14±0.76	2.48±0.86	38.27±18.41	45.58±13.26	60.33±12.56	59.00±12.71
	Statistical analysis	*Z=0.371 p=0.710*	*Z=-0.479 p=0.631*	*Z=-0.193 p=0.846*	*Z=-0.314 p=0.753*	*Z=-0.854 p=0.392*	***Z=-2.158 p=0.030***
Age	65-74 years old	3.21±0.85	2.31±0.72	40.10±18.34	45.72±14.35	59.82±13.28	57.62±12.54
	75-89 years old	3.14±0.76	2.45±0.78	37.68±16.35	45.78±13.12	59.54±13.53	57.01±11.96
	90-96 years old	3.08±0.81	2.68±0.74	33.36±15.04	39.88±14.27	56.80±17.48	54.84±13.87
	Statistical analysis	*H=1.048 p=0.592*	*H=5.016 p=0.081*	*H=3.024 p=0.220*	*H=3.531 p=0.171*	*H=1.291 p=0.524*	*H=1.016 p=0.615*
Marital status	Married	3.26±0.80	2.47±0.90	39.29±18.23	49.15±12.86	65.30±12.89	59.75±12.53
	Widowed	3.09±0.77	2.43±0.70	37.11±15.90	43.32±13.48	56.56±13.16	55.54±11.84
	Statistical analysis	Z=-1.653 p=0.098	Z=0.254 p=0.799	Z=-1.208 p=0.226	*Z=-3.702 p=0.002*	*Z=-5.373 p=0.000*	*Z=-2.572 p=0.010*
Education	Elementary	3.1±0.76	2.48±0.78	38.00±16.44	45.52±13.81	59.68±13.47	56.95±12.00
	Vocational	3.00±0.88	2.28±0.74	31.83±16.50	41.78±12.80	56.52±12.26	54.69±13.97
	Secondary/Higher	3.28±0.84	2.36±0.75	42.12±18.01	48.96±10.93	63.00±12.56	60.88±10.59
	Statistical analysis	*H=2.190 p=0.334*	*H=2.659 p=0.264*	*H=7.564 p=0.022*	*H=4.760 p=0.092*	*H=4.111 p=0.128*	*H=4.791 p=0.091*

Z-Mann-Whitney U test; H-Kruskal-Wallis test.

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The study also analysed the correlation between the NOSGER scale and the WHOQOL-Bref scale (Table 6). A negative correlation was found between the scales in all component areas. Higher NOSGER scale values corresponded to lower WHOQOL-Bref scale. These correlations were statistically significant, with the exception of the correlation between Subjective health state assessment and three areas of the NOSGER scale: Disruptive behaviours, Social behaviour, Memory. There is therefore a relationship between psychophysical fitness and the quality of life perceived by seniors.

Table 6. Correlations between the NOSGER scale and the WHOQOL-Bref questionnaire.

WHOQOL-Bref questionnaire	NOSGER scale						
	NOSGER total	**Activities of everyday life**	**Instrumental activities of everyday life**	**Mood**	**Disruptive behaviors**	**Social behavior**	**Memory**
Subjective quality of life assessment	r = -0.497 p = 0.000	r = - 0.480 p = 0.00	r = -0.501 p = 0.000	r = -0.494 p = 0.000	r = -0.271 p = 0.000	r = -0.429 p = 0.000	r = -0.342 p = 0.000
Subjective health state assessment	r = -0.156 p = 0.006	r = -0.161 p = 0.004	r = -0.138 p = 0.015	r = -0.347 p = 0.000	*r = 0.0174* *p = 0.761*	*r = -0.091* *p = 0.109*	*r = -0.098* *p = 0.085*
Somatic sphere	r = -0.573 p = 0.000	r = -0.591 p = 0.000	r = -0.616 p = 0.000	r = -0.515 p = 0.000	r = -0.264 p = 0.000	r = -0.426 p = 0.000	r = -.0550 p = 0.000
Psychological sphere	r = -0.667 p = 0.000	r = -0.577 p = 0.000	r = -0.636 p = 0.000	r = -0.527 p = 0.000	r = -0.418 p = 0.000	r = -0.706 p = 0.000	r = -0.550 p = 0.000
Social sphere	r = -0.400 p = 0.000	r = -0.313 p = 0.000	r = -0.371 p = 0.000	r = -0.361 p = 0.000	r = -0.299 p = 0.000	r = -0.419 p = 0.000	r = -0.283 p = 0.000
Environmental sphere	r = -0.523 p = 0.000	r = -0.488 p = 0.000	r = -0.490 p = 0.000	r = -0.423 p = 0.000	r = -0.310 p = 0.000	r = -0.490 p = 0.000	r = -0.441 p = 0.000

r – Pearson's correlation coefficient, p – level of statistical significance.

4. Discussion

Conducting a comprehensive geriatric assessment, defined as a multidimensional, interdisciplinary diagnostic process aims at determining the medical, psychological and functional capabilities of an elderly person in order to develop a coordinated and integrated treatment plan. This assessment is crucial for ensuring optimum care for elderly people in a hospital [20]. A geriatric ward is considered the most appropriate setting for providing this type of care [21]. It is believed that an age-appropriate environment, as well as medical staff with experience in caring for people with dementia, lead to better care outcomes, as reflected in a meta-analysis that found comprehensive geriatric assessment of patients in a specialist ward to increase the likelihood of returning home while reducing the number of admissions to inpatient care facilities or deaths and health deterioration [20].

Comprehensive geriatric assessment is specifically designed to identify and treat previously undetected geriatric syndromes which are known to carry a risk of adverse health outcomes. Cognitive impairment and dementia are recognised as the most prevalent geriatric syndromes and are often associated with many other syndromes and share common risk factors [22].

Dementia and cognitive impairment are global problems because, in older people, they often lead to functional disability and dependence. They place a burden not only on patients but also on their family carers, as well as on the healthcare system and economic resources. The problem of dementia is growing as populations are ageing. It is therefore crucial to recognise cognitive impairment at an early stage in order to implement pharmacological and non-pharmacological treatments that will slow down the process and prevent disability [23].

The problem of dementia in the elderly is the subject of many studies covering various aspects of this phenomenon [24–31].

With the projected increase in the proportion of elderly people in the Polish population, the incidence of neurodegenerative diseases, including dementia syndromes, will also increase. The

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onset of dementia symptoms quickly impairs the daily functioning of a patient, creating a need for assistance from others. In Poland, care for elderly people with dementia is mainly non-institutional and is provided by immediate family members in their own homes. Due to the declining care potential of Polish families, an increasing demand for formal forms of support in the care of elderly people with dementia is to be expected [32].

The assessment of seniors allowed the authors to identify deficits in functional performance. However, the deficits were mainly manifested in physical functioning. To a lesser extent, there were deficits in dementia-related changes. This result indicates good mental performance in the group of seniors studied. The areas that received the highest scores were disruptive behaviour, activities of daily living and memory, all of which are the areas associated with the risk of dementia. Similar results were obtained in studies on the risk of dementia in other groups of seniors [33–35].

Our own research showed that the functional fitness of men and women was at a similar level. Studies conducted by Hebert et al.; Kawas et al. and Edland et al. did not show a difference in the incidence of dementia in women and men [36–38]. However, in studies of patients in social care homes, the authors found that men scored slightly better on the NOSGER scale [39]. Similarly, in studies conducted in Sweden, the incidence of dementia was higher in women than in men, with the incidence of dementia differing after the age of 85 [40]. However, different results were obtained in studies of neurogeriatric patients, where women showed better functional performance [41].

Our study found that patients in the youngest age group (65-74 years old) had the highest functional ability and were therefore the least likely to develop symptoms of dementia. The authors' study showed that the functional ability of seniors deteriorates with age. The authors' findings are consistent with those obtained by other researchers [42,43], which is confirmed by reports in the literature indicating an increase in the number of cases of dementia with age from approximately 1% after the age of 65 to approximately 40% after the age of 90. The incidence of dementia doubles approximately every five years [44,45].

Our study found that married people functioned best, which is confirmed by a study conducted by Liu et al. [46] administered among American seniors. It was found that all groups of people who were not married, including those living in cohabitation, divorced/separated, widowed and never married, had a significantly higher probability of developing dementia during the study period than seniors in marital relationships. The study by Głowacka et al. [35] also showed that marital status significantly differentiates functional ability, with married people being the least at risk of dementia [Głowacka 2017]. Karakose et al. obtained different results in their study. The authors conducted an 18-year study in the United States and found that older people who remain married have a higher risk of dementia compared to seniors who have never been married, are divorced or widowed [47].

People with lower levels of education are more likely to show symptoms of dementia than those with higher levels of education [48–50]. Our study showed that the level of education affects the psychophysical performance of seniors. Patients with secondary/higher education showed significantly better functional performance compared to those with primary or vocational education. Norwegian studies also showed that the increased risk of dementia associated with low education was differentiated by health and lifestyle factors assessed from early to late adulthood. Furthermore, 7–13% of the association between education and the risk of dementia in late life was mediated by health risk factors in early, middle and late adulthood, and about 5% by lifestyle factors in middle and late adulthood. These studies also indicated a relatively stronger indirect effect of health risk factors and all mediators combined on the impact of low educational attainment on dementia risk among men compared to women [51].

The quality of life of older people is influenced by many factors such as depressive disorders, functional impairment and other health problems. These can reduce the patient's quality of life, while social support can have a positive impact on quality of life. Psychosocial resources can have a significant impact on patients' quality of life. Although quality of life may decline with physical disability, older people with significant limitations in their daily lives may still rate their quality of life as good [52].

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Our study found that the quality of life of patients in geriatric wards was reduced. A study by Wróblewska et al. conducted in a group of patients in geriatric wards showed that the majority of respondents rated their quality of life as good (42.14%) [53]. The study by Jazayeri et al. showed that approximately 30% of older people had a high quality of life. The quality of life of more than one-third of older people was moderate, and approximately 34% of them had a low quality of life [54].

Our own research showed that women rated their quality of life lower than men. Similar conclusions were reached by Chen et al. in their study of 1,278 elderly people in China [55]. In contrast, in the study by Machón et al. [5], a higher percentage of women rated their quality of life as good.

Our study showed that, in general, the highest quality of life was reported by people in the youngest age group. Different results were obtained in the study by Kowalczyk et al. [56]. The authors showed that seniors aged 90+ rated their quality of life the highest.

Our study found seniors with secondary or higher education to have a higher quality of life. Also, in a study conducted by Machón et al. [5], a higher percentage of seniors with secondary or higher education stated that their HRQL was good compared to those with lower levels of education. The study by Rao et al. also showed that the quality of life of elderly people increases with the level of education [57].

Our own research also found that the quality of life of older people increased with higher levels of education. These results were also confirmed by Saurav et al. [58]. However, a different relationship between education and quality of life was found in the study by Kowalczyk et al. The authors found that as the level of education increases, the quality of life of older people decreases [56].

In the study conducted in India by Devraj, Shilpa et al. on a group of seniors, it was shown that variables such as gender, level of education and marital status significantly affect the quality of life perceived by older people [59].

Limitations of the Study

The study was limited to the Lublin Region in eastern Poland, which is a limitation and does not provide a complete picture of the situation of older people in the entire Polish population. The focus on older people in relation to selected sociometric variables defined by the study assumptions is another limitation. Further research is needed to examine a wider range of factors, including health status, depression and social isolation, to ensure a more complete understanding of the challenges associated with ageing. It should also be noted that the NOSGER scale is a first-line tool for patient assessment. If there are any doubts about a patient's condition, the diagnosis should be further investigated with more specific tests.

5. Conclusions

The study group of patients hospitalised in geriatric wards showed a moderate risk of dementia. In areas relevant to the diagnosis of such changes (memory, emotions, disruptive behaviours), patients functioned at a fairly good level.

The greatest deficits were found only in physical functioning, which was related to physical limitations caused by existing diseases and age-related limitations. The quality of life of the patients was assessed as poor. The level of psychophysical functioning had a significant impact on the perceived quality of life of the patients hospitalised in geriatric wards.

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