

Physiotherapy and quality of life of patients in long-term care

Postępowanie fizjoterapeutyczne a jakość życia pacjentów objętych opieką długoterminową

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Key words

physiotherapy, quality of life, functional status, long-term care

Abstract

Background: The importance of physiotherapy in improving quality of life of patients in long-term care is not yet fully understood. The aim of the study was to assess the quality of life and functional status of patients in long-term care with respect to their rehabilitation.

Study design: Cross-sectional.

Materials and methods: The study was conducted among a group of 58 individuals. A questionnaire to collect the data concerning rehabilitation, the Barthel scale, VAS and WHOQOL-Bref were used.

Results: The functional condition was assessed as moderately heavy and light in 83.9% of participants. More than 70% of patients rated the quality of life as good and very good. There was no significant relationship between participation in rehabilitation and quality of life of the subjects ($p=0.35$). There was a monotonic relationship between the social domain of quality of life and satisfaction with rehabilitation ($r=0.34$, $p=0.01$). There was a significant correlation between the quality of life and BMI, education, pain and level of functional efficiency assessed using the Barthel scale.

Conclusions: The majority of the studied nursing-home residents participated in rehabilitation and were satisfied with it, which positively affected the quality of life in terms of social relations.

Słowa kluczowe

fizjoterapia, jakość życia, stan funkcjonalny, opieka długoterminowa

Streszczenie

Wstęp: Znaczenie fizjoterapii w poprawie jakości życia pacjentów objętych stacjonarną opieką długoterminową nie jest jeszcze do końca poznane. Celem badania była ocena jakości życia i stanu funkcjonalnego pacjentów objętych opieką długoterminową w odniesieniu do prowadzonej rehabilitacji.

Projekt badawczy: badanie przekrojowe

Materiał i metody: Badanie przeprowadzono w grupie 58 osób. Do zebrania danych wykorzystano kwestionariusz dotyczący rehabilitacji, skalę Barthel, skalę VAS oraz kwestionariusz WHOQOL-Bref.

Wyniki: Stan funkcjonalny oceniono jako średnio ciężki i lekki u 83,9% osób. Ponad 70% pacjentów jakość życia oceniło jako dobrą i bardzo dobrą. Nie wykazano istotnej zależności między uczestnictwem w rehabilitacji a jakością życia badanych ($p=0,35$). Istnieje monotoniczna zależność pomiędzy zadowoleniem z rehabilitacji a domeną socjalną jakości życia ($r=0,34$, $p=0,01$). Wykazano istotną zależność między jakością życia a BMI, wykształceniem, bólem i poziomem sprawności ocenionym w skali Barthel.

Wnioski: Większość ankietowanych mieszkańców Domów Pomocy Społecznej uczestniczyła w rehabilitacji i była z niej zadowolona, co pozytywnie wpłynęło na ocenę jakości życia w zakresie relacji społecznych.

The individual division in this paper was as follows: a – research work project; B – data collection; C – statistical analysis; D – data interpretation; E – manuscript compilation; F – publication search

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INTRODUCTION

Long-term care is an issue that is being more and more frequently tackled by scientists and clinicians. On the one hand, the growing interest in this subject is due to economic reasons (the desire to reduce the cost of long-term care along with the rapid increase in the demand for this type of health service) and on the other hand, the desire to improve the quality of life of patients staying at long-term care facilities.

The importance of physiotherapy in improving the quality of life of patients in long-term care is not yet fully understood. Baum et al.¹ showed the significant effect of exercise on the strength of older people, their well-being and overall health. The ongoing physiotherapy treatments should be safe and effective (and should significantly improve the physical and mental state of patients), but there is a lack of clear guidelines on the frequency, duration and forms of the undertaken action².

Many authors have noted that rehabilitation in institutions providing long-term care is an accepted and potentially effective form of therapy, improving quality of life³⁻⁶, particularly in patients with cognitive disorders⁷. Cakar et al.³, based on research conducted among 168 patients benefiting from stationary long-term care, show that regularly conducted exercise influences improvement in balance, reduces the risk of falls and improves quality of life. All the authors note the need for further studies to determine the therapeutic benefits of carrying out rehabilitation in long-term care and its impact on the quality of life of residents.

According to Walden-Galuszko⁸, assessing quality of life allows to evaluate the effectiveness of specific therapeutic methods, and also allows for comparison of different models in palliative care. Evaluating quality of life of patients as well as the relationship between the functional state and self-reported quality of life appears to be substantial. This evaluation should be conducted in a variety of long-term care centres within the scope of 4 domains: physical, psychological,

environmental and social. The need to define the role of the physiotherapist in improving the quality of life of patients in long-term care has become an inspiration to undertake research. The aim of the study was to assess the quality of life and functional status of patients at stationary long-term care facilities with regard to rehabilitation, as well as the relationship between demographic factors and quality of life.

MATERIAL AND METHODS

Study participants

The study was conducted among a group of 58 people (40 women and 18 men) in centres providing long-term care in the region of southern Poland. There was at least one physiotherapist working at each centre. Respondents could use physiotherapy treatments, kinesiotherapy and massages. Exercise programs were individually tailored to the health state, physical fitness and preferences of the studied seniors and included the following forms of rehabilitation: verticalization, gait learning, free active exercises with lightening and loading, active resistance exercises, balance exercises, massage.

Criteria for exclusion from the study were: the lack of consent to participate in the study and a physical or mental state preventing the participant to give informed answers. The research was carried out in accordance with the Declaration of Helsinki.

Research tools

Questionnaire concerning the rehabilitation

The first part of the questionnaire contained questions defining socio-demographic features (gender, age, number of children, marital status, education level, duration of residence at the long-term care facility). The second part concerned participation in rehabilitation and satisfaction with its progress, assessed on a scale of 0 to 10.

The Barthel scale

The Barthel scale allows the assessment of functional status of patients and determines psychophysical efficiency of a subject. The following tasks are evaluated: meal consumption, movement (from bed to chair and back, sitting down), personal hygiene, using the toilet, bathing the whole body, moving on flat surfaces, climbing up and down the stairs, dressing and undressing, anal sphincter and bladder control. For each task, the examinee can obtain from 0.5 to 10 points, depending on their level of independence in performing the task. Classifying the tested individual between 86 and 100 points means that s/he is independent, capable of self-care and abilities in this respect are minimally limited. Scores between 21-85 points show the need for partial help, assistance, and the person has a substantially limited ability for self-care. The lowest score between 0 and 20 points means the examined person is unable to function independently and requires care of a third-party⁹.

The VAS scale

The Visual Analogue Scale (VAS) was used to assess pain severity. The subjects rated the severity of perceived pain on a 10 cm scale with the marked values: 0 (no pain) and 10 (maximal pain), then, using a ruler, the marked values were read. It was assumed that the range of 1 to 3 points is low-intensity pain, 4 to 6 is moderate pain, and 7 to 10 is severe pain^{6,10}.

WHOQOL – BREF questionnaire (The World Health Organization Quality of Life)

This questionnaire was developed in order to obtain subjective cognitive clinical evaluation and to evaluate the quality of life of healthy and ill individuals. The theoretical basis is the definition of quality of life created by the World Health Organization. It emphasizes the multidimensionality of the concept of quality of life, focusing on the universal aspects, omitting the specific symptoms

and side effects of its treatment¹¹. It is a universal tool, the credibility of which has been scientifically confirmed¹²⁻¹⁴. The questionnaire allows the presentation of the quality of life profile in four areas: physical, psychological, social relationships, environmental. The respondent is asked to answer 26 questions. The scale includes two questions analyzed separately: concerning the individual and overall assessment of quality of life and the question about the general perception of their health.

Statistical analysis

Distribution of qualitative variables was described by specifying relative and absolute frequencies, while the quantitative variables were described by specifying the mean and standard deviation or median, and lower and upper quartiles (depending on the distribution of the feature). Normal distribution of quantitative variables was examined using the Shapiro-Wilk test. The relationship between analyzed features was examined using Fisher's Exact test, the Kruskal-Wallis test and Spearman's rank correlation. All analyzes were performed using the statistical programme - SPSS Software version 23, IBM, Armonk. Statistical significance was assumed at $\alpha=0.05$.

RESULTS

Table 1 shows the distribution of the studied variables. The majority of respondents (86%) are residents of cities. Elementary and vocational ed-

ucation was declared by 47.28% of respondents, 21.82% had a high-school education, while 30.9% higher education. 14.3% of persons were married, the rest were single or unmarried (33.9%), divorced (17.9%), or widow(er)s (33.9%).

Daily rehabilitation was attended by 51 residents (87.93%). Functional status of the residents according to the Barthel scale was evaluated as "very severe" in 9 patients (16.1%), "moderately severe" in 31 patients

(55.3%), "light severity" in 16 patients (28.6%).

Over 70% of the patients rated the quality of life as good and very good. When concerning health self-assessment, 29.9% of people were satisfied with their health, 45.6% were dissatisfied, while 1/4 of respondents could not clearly determine the level of satisfaction resulting from health self-evaluation.

Table 2 presents the results of research using the WHOQOL - BREF

Table 1

Distribution of examined variables			
Variable	N	Me	Q1/Q3
Age [years]	58	78	67/85
Duration of stay at centre [months]	53	36	15/84
Satisfaction with rehabilitation (VAS scale 0-10)	54	9	8/10
Perceived pain (VAS scale 0-10)	57	6	4/8
Functional status (Barthel scale 0-100)	56	80	40/90
Variable	N	Mean	SD
BMI [kg/m ²]	53	24.1	4.49

List of abbreviations: Me – median; Q1 – lower quartile; Q3 – upper quartile; SD – standard deviation; VAS – Visual Analogue Scale; BMI – Body Mass Index

Table 2

Distribution of WHOQOL-BREF questionnaire results			
WHOQOL-BREF	N	Possible range	Mean (SD)
Overall quality of life (question 1)	58	1-5	3.77 (0.845)
Satisfaction with health state	58	1-5	2.81 (1.076)
	N	Possible range	Median (Q1/Q3)
Somatic domain	58	4-20	12 (11/14)
Psychological domain	58	4-20	13 (12/14)
Social domain	58	4-20	10 (8/12)
Environmental domain	58	4-20	16 (13/18)

List of abbreviations: WHOQOL-BREF – The World Health Organization Quality of Life; SD – standard deviation; Q1 – lower quartile; Q3 – upper quartile

Table 3

Spearman rank correlations between the examined domains and age, duration of stay, BMI and the Barthel and VAS (n = 58) scales				
	Somatic domain	Psychological domain	Social domain	Environmental domain
Age	$r=-0.09, p=0.48$	$r=0.01, p=0.95$	$r=0.05, p=0.69$	$r=0.23, p=0.08$
Duration of stay	$r=0.25, p=0.07$	$r=-0.01, p=0.95$	$r=0.15, p=0.29$	$r=0.22, p=0.11$
BMI	$r=0.22, p=0.11$	$r=-0.01, p=0.98$	$r=0.17, p=0.21$	$r=0.28, p=0.04$
Barthel scale	$r=0.21, p=0.14$	$r=0.11, p=0.46$	$r=0.08, p=0.55$	$r=0.31, p=0.02$
VAS scale	$r=-0.05, p=0.72$	$r=0.29, p=0.03$	$r=-0.14, p=0.28$	$r=-0.15, p=0.26$

List of abbreviations: VAS – Visual Analogue Scale; BMI – Body Mass Index
Statistically significant values are in bold

Table 4

Comparison of the distribution of individual domains in terms of education level			
Somatic domain			
Education	N	Me (Q1/Q3)	<i>p</i>
Elementary	26	12 (11/13)	
High-school	12	12.5 (10.5/13.5)	0.08*
Higher	17	14 (12/16)	
Psychological domain			
	N	Me (Q1/Q3)	<i>p</i>
Elementary	26	13 (11/13)	
High-school	12	12 (11.5/14)	0.18*
Higher	17	13 (12/15)	
Social domain			
	N	Me (Q1/Q3)	<i>p</i>
Elementary	26	9 (8/11)	
High-school	12	9 (8/11)	0.0007*
Higher	17	13 (11/13)	
Environmental domain			
	N	Me (Q1/Q3)	<i>p</i>
Elementary	26	14 (13/16)	
High-school	12	16 (15/18)	0.003*
Higher	17	18 (16/19)	

* Kruskal-Wallis test, $\alpha=0,05$, statistically significant values are in bold

WHOQOL-BREF - The World Health Organization Quality of Life; SD - standard deviation; Q1 - lower quartile; Q3 - upper quartile

questionnaire. The respondents rated the quality of life most highly in terms of the environmental domain, the worst was in terms of the social domain.

No significant relationships between participation in rehabilitation and quality of life of the participants were noted (WHOQOL-BREF), $p=0.35$. There was a monotonic relationship between satisfaction with rehabilitation and the social domain ($r=0.34$, $p=0.01$).

Table 3 shows the relationship between the four domains of quality of life and age, duration of stay at the long-term care facility, BMI, Barthel and VAS scales. Positive correlations were found between the environmental domain and BMI as well as the Barthel scale, and between the psychological domain and pain assessed using the VAS scale.

Distribution of particular variables in terms of education level is given in Table 4. There is a significant differ-

ence in the distribution of the social and environmental domains in terms of education level. Respondents with higher education have significantly higher values in the social ($p<0.001$) and environmental ($p=0.003$) domains.

DISCUSSION

The concept of quality of life is used for the overall assessment of a patient's physical, psychological and social relations and the environment in which s/he functions. The study of quality of life can be a valuable addition to medical examinations, particularly among patients with chronic diseases, as well as in the elderly population. Moreover, they can help determine the factors leading to the occurrence of health problems and the care of this group of people, and also indicate the proper direction of therapeutic action.

The first group of factors affecting the quality of life of elderly people are physiological aspects associated with aging, which leads to reduced efficiency and functional deterioration of health¹⁵. The second group of factors are psychological because, as research shows, the mental efficiency of individuals reduces significantly with age¹⁶⁻¹⁸. According to the WHOQOL-BREF questionnaire, these factors are: appearance, negative feelings, positive feelings, self-esteem, spirituality, religion, thinking, learning, memory, concentration. In the next field - social relations - we may distinguish: personal relationships, social support, sexual activity. In assessing the comfort of life by older people, their state of being is of great importance and is associated with the end of professional activity, financial resources, a sense of security, the home environment, opportunities to acquire new information and skills, opportunities to participate in recreation and leisure⁹.

Our research conducted among residents of nursing homes (DPS) showed a good level of assessed quality of life, but almost half of the respondents were dissatisfied with their health. The quality of life in terms of the environmental field was rated the highest, while the lowest was in terms of the social field. Similar results were obtained by Lai et al.¹⁹ assessing the quality of life in 125 residents of nursing homes, showing the worst results also in the field of social relations, and the best in the field of psychology, and the overall quality of life, similarly as among our respondents, remained at a middle level. The average level of quality of life was also presented by other researchers^{15,20-22}. Fidecki et al.¹⁵ noted that the lowest level of quality of life was rated in the physical field, which according to the authors may have been related to the state of health of patients. Other researchers have demonstrated a low level of quality of life of patients residing at long-term care centres²³⁻²⁶. According to Gorna and Jaracz²⁷, lower quality of life in long-term care is associated with the need to adapt to new living conditions, to co-exist and learning how function in contacts with strangers.

Improving the quality of life of seniors in long-term care is associated with improvement in their functional state^{5,12,13}, which in geriatric patients deteriorates with age, causing intensification of the disability and dependence on others²⁸⁻³⁰. Our research confirmed the existence of the relationship between functional status and quality of life, particularly in the environmental field (the better the functional status, the better the quality of life of respondents).

An important element improving the functioning of patients and their quality of life is rehabilitation²⁻⁶. The aim of geriatric rehabilitation is to maintain or restore independence in everyday functioning³¹⁻³³. It should be noted, however, that according to the World Health Organization (WHO)³⁴, physical activity of elderly people should be interdisciplinary in nature, that is, improving both the physical and mental state of patients.

Exercise is one of the factors preventing loneliness and social isolation among seniors³⁵.

Our study showed no statistically significant relationship between participation in rehabilitation and quality of life. This result may be due to the fact that the majority of respondents (almost 90%) participated in physical exercise and only 10% of the study participants did not take part in them, and therefore, comparing the distribution of the quality of life scale in terms of participation in rehabilitation was difficult. We have shown, however, that people satisfied with the course of rehabilitation assessed their quality of life higher in terms of the field of social relations. On the other hand, people with higher BMI assessed their quality of life in terms of the environmental field higher. Socio-demographic factors also have significant impact on the self-assessment of quality of life, including age, sex, education, marital status, place of residence^{15,19}. Our study has shown that people with higher education assess their quality of life higher in terms of the social and environmental fields.

SUMMARY AND CONCLUSIONS

Most of the studied residents of nursing homes participated in rehabilitation and were happy with it, which positively affected the assessment of quality of life in terms of social relations. The functional status of seniors also had significant impact on the assessment of quality of life. The better the functional status, the better the quality of life of respondents in terms of the environmental domain.

Studies assessing the impact of motor activation on the quality of life of patients in long-term care are difficult to carry out. It should be remembered that the patient is characterized by geriatric multi-morbidity, often chronic in nature. Each and every illness reduces the efficiency of a patient in a different way and requires different rehabilitation procedures. Establishing a uniform exercise program individually tailored to the health, physical fitness and preferences of seniors surveyed in such

a diverse group is difficult. It is necessary to conduct research in homogeneous groups, both in terms of disease entity, as well as the physical and mental state of patients, which would allow to select an appropriate exercise program and thus, to assess the effectiveness of rehabilitation in improving the quality of life among this group of patients.

Conflict of interest: None declared

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