



Quality of Life of Patients after Musculoskeletal Surgery and Rehabilitation

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Article received: 10.02.2024.

Article accepted: 16.04.2024.

<https://doi.org/10.24141/2/8/1/2>

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Keywords: quality of life, musculoskeletal system, rehabilitation, SF-36

Abstract

Introduction. Rehabilitation implies a form of healthcare aimed at restoring and maintaining physical strength and mobility with the ultimate goal of achieving the best possible results.

Aim. To examine the quality of life of patients after musculoskeletal surgery and rehabilitation in terms of age, sex, diagnosis, and comorbidities.

Methods. The research was conducted as a cross-sectional study. It included patients who underwent musculoskeletal surgery and rehabilitation at the inpatient treatment facility in the Bizovačke Toplice Spa for 21 days. An anonymous survey questionnaire was used with demographic data and the SF-36 self-assessment questionnaire on the quality of life.

Results. A total of 96 participants took part in the study, 62 (64.6%) were female, 44 (45.8%) had hip surgery and 43 (44.8%) had no comorbidities. The mean age of the participants is 63 years (range from 18 to 91 years). The participants aged 50 and younger have a significantly lower assessment of their limitations due to physical difficulties. Male participants estimated a statistically significantly better quality of life after surgery and rehabilitation compared to female participants, in terms of better physical functioning, assessments of greater vitality and energy, better psychological health, better social functioning, and a better perception of general health. The different diagnoses of the participants and the performed surgical procedures are not significantly related to the quality of life after musculoskeletal surgery and rehabilitation.

Conclusion. The lowest assessment of the quality of life of the participants was expressed in the aspect of limitations due to physical difficulties. Female participants, younger participants, and participants without comorbidities estimated a worse quality of life.

Introduction

Medical rehabilitation plays an important role in today's healthcare system, but also in society as a whole. Rehabilitation implies a form of healthcare aimed at restoring and maintaining physical strength and mobility with the ultimate goal of achieving the best possible results. The importance of rehabilitation is in achieving the greatest possible independence and quality of life for the individual after operations, injuries, and illnesses. After the surgery, patients, following the recovery period and the surgeon's approval, begin a 21-day rehabilitation program as part of the protocol determined according to the Ordinance on conditions and methods of exercising rights in the compulsory health insurance for hospital treatment with medical rehabilitation and physical therapy at home. The insured person will be eligible to hospital inpatient rehabilitation if they meet the legal conditions and if it is considered that the implementation of the rehabilitation program will improve the person's functional status. Also, an individual has the right to undergo the rehabilitation if there are no contraindications such as infectious diseases, febrile conditions, decubitus wounds, malignant disease in a state of progression, heart decompensation, post-operative wounds which have not healed, and other conditions which make it impossible to carry out physical therapy (1). In the context of healthcare, rehabilitation is defined as a process of active changes by which a disabled person acquires the skills and knowledge necessary for normal social, psychological, and physical functioning (2). Early rehabilitation of the postoperative patient is the key to successful rehabilitation. Successful rehabilitation implies a motivated patient, continuous and adequate therapeutic exercises, prevention and suppression of possible complications, and treatment with a rehabilitation team (3). The aim of medical rehabilitation

is for the patient to acquire the skills to live with new conditions and to teach them how to continue living with the current disability in their environment. During rehabilitation, the entire rehabilitation team, the patient, including the patient's family, should set a realistic goal together for the outcome of the rehabilitation to preserve the current and improve the future quality of life. Each person is unique, therefore the rehabilitation plan should be adapted to and individualized according to the individual (4). Also, for a person with a long-term disability, regardless of the disease, stage of the disease or age, rehabilitation can affect the improvement of the current condition. General interventions consist of rehearsing tasks and exercises, conducting education, and psychosocial support for patients. In addition, some unpredictable interventions can be involved, which makes rehabilitation a complex process and represents a challenge for the entire multidisciplinary team (5).

Musculoskeletal system

The musculoskeletal system, or the locomotor system, consists of bones in the body, muscles, ligaments, tendons, cartilage, joints, and other connective tissue. The skeleton serves as a support for the body and gives it shape, while the muscles are responsible for moving a certain part of the body and together ensure movement and stability (6). The damage which affects the musculoskeletal system includes many conditions/diseases which affect daily life and lead to temporary or permanent limitations in a person's mobility and functioning. Altered states in bone, muscle, joint, and connective tissue damage are often characterized by long-term and frequent pain that affects mobility and reduces people's ability to participate in social activities and daily work. Damage to the musculoskeletal system occurs throughout life, from early childhood to old age. Changes can be short-term and occur suddenly (fracture, sprain, strain) or long-term, chronic conditions such as osteoarthritis or primary back pain. Disorders of the musculoskeletal system bring the necessary need for rehabilitation. People exposed to damage/diseases of the musculoskeletal system are often exposed to the risk of developing problems related to mental health or other comorbidities (7).

Quality of life

Quality of life plays an important role in the field of medicine and healthcare. It is considered a complex concept which is interpreted differently within and between disciplines, including the fields of medicine and health (8). In the literature, we come across numerous definitions of the quality of health, but there is still no universally accepted definition, which is why there are numerous instruments and questionnaires which are used to assess the quality of life. The World Health Organization (WHO) defines the quality of life as an individual's perception of life in a social, specific cultural, and environmental context (9). The quality of life which we associate with health refers specifically to the health of the individual and indicates a measure of well-being, functioning, and general perception of health, and is divided into three phases: mental, social, and physical. The instruments used to measure health-related quality of life are based on the concept of health, and the patient is the source of information. In today's modern medicine, there is a growing interest in examining the cost-effectiveness and efficiency of new treatment methods which, apart from the benefit-cost ratio, include the patient's perception of health as a measure of successful treatment (10).

The role of the nurses in patient rehabilitation

Nowadays, patients have the right to and the need for adequate medical rehabilitation, for which the indispensable cooperation of health and non-health workers, health associates, and adequate medical space, accessories, and equipment are responsible. The team of rehabilitation health workers consists of specialists in physical and rehabilitation medicine - physiatrists, nurses, caregivers, physiotherapists, orthopedic technicians, occupational therapists, and others (11). The nurse in the rehabilitation team specializes in helping patients with certain disabilities and comorbidities with the aim to achieve health, functioning, and adaptation to a changed lifestyle. Nurses and technicians are part of a multidisciplinary team and often coordinate team activities and patient care, provide healthcare which promotes maintenance and restoration of function and prevention of complications, and provide education and counseling for both patients and families (12). When patients become unable to independently perform their daily activities and take care of their basic needs, the role of the nurse plays an important role in their lives (13).

Today, with the progress of nursing and the emphasis on active and independent care, the patient is actively involved in rehabilitation, and nursing interventions are no longer focused only on providing care, but also training, education, and support for the patient aimed at achieving the ultimate goal. This approach to nursing care is the main role of rehabilitation. The role of the nurse in rehabilitation includes maintaining basic physical functions such as breathing, and skin function, preventing complications from prolonged lying down, cardiovascular functions, taking care of adequate nutrition, and training self-care functions (14). Nurses do not only meet physical needs but also support patients in other aspects, such as social, psychological, and spiritual dimensions.

To fulfill the abovementioned needs, the equipment for healthcare and the environment in which the patient is located is also important (13). In the first place, the nurse is responsible for the patient's care and, depending on the patient's individual needs carries out adequate medical rehabilitation interventions (14). Nurses are often present with the patient "24/7" and thus spend more time with the patient than other team members. Currently, there is a shift towards a proactive approach in rehabilitation care in the sense that nurses provide healthcare to the patient, not just for him, thus encouraging him to participate in his care as much as possible (15). Research indicates that patients after musculoskeletal surgery need multidisciplinary care due to their low quality of life (16), which is lower than the quality of life of the general population (17). Diseases of the musculoskeletal system limit the ability to move through joint dysfunction and pain. Surgery and postoperative rehabilitation improve the above but do not ensure complete recovery and mobility (18).

Aim

The aim of this research was to examine the quality of life of patients after musculoskeletal surgery and rehabilitation and to examine the quality of life after musculoskeletal surgery and rehabilitation concerning gender, age, diagnosis, and comorbidities.

Methods

The research was conducted in the Bizovačke Toplice Spa during March and April 2023 as a cross-sectional study (19). The participants are patients after musculoskeletal surgery and rehabilitation at the inpatient treatment in the Bizovačke Toplice Spa for 21 days. The inclusion criteria were: 18 years of age and above, cognitively preserved, understanding and speaking the Croatian language, and voluntarily agreeing to fill out the survey questionnaire. The participants filled out the questionnaire upon discharge.

Ethics

The research was conducted under all valid guidelines, including the basics of good clinical practice, the Declaration of Helsinki, the Health Care Act of the Republic of Croatia, and the Patients' Rights Protection Act of the Republic of Croatia. The Ethics Committee of the Bizovačke Toplice Spa (14/2023/1) and the Ethics Committee of the Faculty of Dental Medicine and Health (2158/97-97-10-23-33.) gave their consent and approval for the implementation of this research.

Procedure

The research was explained to the participants in a way they could understand, and if they agreed to participate in the study, they were given an informed consent form to sign. After signing the informed consent form, the participants filled out the questionnaire independently. The completed questionnaire was returned in sealed envelopes to ensure anonymity. An anonymous questionnaire consisting of two parts was used as a research instrument. In the first part, the respondents answered questions about age, gender, place of residence, type of surgery, and comorbidities. In the second part of the survey, a Croatian example of a questionnaire licensed by the School of Public Health "Andrija Štampar" was used. The questionnaire is related to the self-assessment of the quality-of-life SF-36 (Short form 36 Health Survey Questionnaire) (17). The questionnaire has a total of 36 questions covering: the way of physical functioning, limitations caused by physical problems, physical pain, overall health, vitality, social functioning, limitations caused by psychological problems,

and psychological health. The SF-36 questionnaire is a very popular instrument for assessing quality of life and is used worldwide to assess health-related quality of life (20).

Statistics

Descriptive statistical methods were used to describe the frequency distribution of the investigated variables. Mean values are expressed as arithmetic mean, minimum and maximum value, and standard deviation. The t-test for independent samples was used to examine the differences in results between two independent groups of subjects, while the one-way analysis of variance was used to examine the differences between several independent variables. The Kolmogorov-Smirnov test was used to test the normality of the distribution. A value of $p < 0.05$ was taken as the level of statistical significance. The statistical package IBM SPSS 25, Chicago, USA, was used for processing.

Results

Table 1. Distribution of demographic and surgical variables

		N (%)
Gender	Male	34 (35.4)
	Female	62 (64.6)
Residence	City	53 (55.2)
	Village	40 (41.7)
	Suburban settlement	3 (3.1)
Type of surgery	Knee surgery	35 (36.5)
	Hip surgery	44 (45.8)
	Spine surgery	14 (14.6)
	The rest	3 (3.1)
	Diabetes	9 (9.4)
	High blood pressure	23 (24)
Comorbidities	Obesity	5 (5.2)
	The rest	3 (3.1)
	Diabetes and high blood pressure	6 (6.3)
	High blood pressure and obesity	5 (5.2)
	Diabetes, high blood pressure and obesity	2 (2.1)
	No comorbidities	43 (44.8)
		M (min-max)
Age		63 (18-91)
		SD
		13.59

A total of 96 participants took part in the research, 62 (64.6%) were female, 53 (55.2%) lived in urban areas, 44 (45.8%) had hip surgery and 43 (44.8%) had no comorbidities. The mean age of the participants is 63 years (ranging from 18 to 91 years) (Table 1).

Table 2. Descriptive statistics of subscales of the SF 36 questionnaire

	M (min-max)	SD
Physical functioning	47.03 (0-100)	28.80
Limitation due to physical disabilities	32.81 (0-100)	42.03
Limitation due to emotional difficulties	48.26 (0-100)	45.33
Vitality and energy	46.56 (5-85)	17.55
Mental health	58.20 (0-100)	17.84
Social functioning	53.77 (0-100)	23.51
Physical pain	49.21 (0-100)	24.33
Perception on general health	48.12 (5-90)	18.82

The best assessment of the participants was expressed in the aspect of mental health $M=58.20$ ($SD=17.84$), while the lowest was in the limitation due to physical difficulties $M=32.81$ ($SD=42.03$) (Table 2).

The results showed that there is a significant difference according to the gender of the participants in physical functioning ($T=2.318$; $p=0.02$), vitality and energy ($T=3.351$; $p=0.001$), mental health ($T=2.310$; $p=0.003$), social functioning ($T=2.044$; $p=0.04$), perception of general health ($T=2.739$; $p=0.007$), significantly better physical functioning, vitality and energy, psychological health, social functioning and perception of general health are shown by male participants compared to female participants (Table 3).

The participants were divided into three categories according to age, which were determined so that there would be an approximately equal number of participants in each group.

The Tukey post hoc test showed that participants aged 50 years and younger were significantly worse (One-way analysis of variance; $F=2.540$; $p=0.01$; Tukey post hoc; $p<0.05$) when their limitation due to physical disabilities according to the condition of participants aged 51 to 60 and 61 and older was assessed. The Tukey post hoc test showed that there were no significant differences between the groups of 51 to 60 years and 61 years and older (Table 4).

The results showed that participants who have comorbidities evaluate their physical functioning significantly better (t-test; $T=2.044$; $p=0.04$) and that participants who had no comorbidities estimate a significantly higher limitation due to physical difficulties (t-test; $T=2.357$; $p=0.01$) (Table 5).

Table 3. Results of the subscales of the SF 36 questionnaire by gender

	Gender					p*
	Male		Female			
	M (range)	SD	M (range)	SD		
Physical functioning	58.02 (5-95)	23.95	42.09 (0-100)	30.19	0.02	
Limitation due to physical disabilities	28.68 (0-100)	42.25	35.08 (0-100)	42.09	0.47	
Limitation due to emotional difficulties	51.96 (0-100)	45.08	46.23 (0-100)	45.71	0.55	
Vitality and energy	54.26 (5-85)	19.29	42.33 (0-100)	14.61	0.001	
Mental health	63.76 (12-100)	19.64	55.16 (16-88)	16.14	0.003	
Social functioning	60.29 (12-100)	25.27	50.20 (0-100)	21.88	0.04	
Physical pain	52.94 (5-90)	26.77	47.17 (15-85)	22.86	0.26	
Perception on general health	55 (0-100)	22.29	44.35 (0-100)	15.56	0.007	

* t test

Table 4. Results of the subscales of the SF 36 questionnaire according to the age of the participants

	Age						p*
	Number of respondents (%)						
	50 and younger 28 (29.16)		51-60 36 (37.5)		61 and older 32 (33.33)		
	M (range)	SD	M (range)	SD	M (range)	SD	
Physical functioning	54.64 (0-100)	26.41	53.42 (0-85)	24.44	43.41 (0-85)	30.21	0.23
Limitation due to physical disabilities	16.07 (0-100)	28.76	56.57 (0-100)	44.75	29.36 (0-100)	21.28	0.01
Limitation due to emotional difficulties	33.33 (0-100)	25.29	61.40 (0-100)	39.90	47.61 (0-100)	46.64	0.21
Vitality and energy	47.85 (10-85)	21.27	52.36 (20-75)	15.03	44.52 (5-85)	17.22	0.22
Mental health	58.57 (12-88)	21.88	63.15 (20-100)	18.40	56.63 (16-100)	16.71	0.38
Social functioning	50.00 (0-100)	32.88	62.50 (25-100)	19.54	51.98 (0-100)	21.90	0.18
Physical pain	45.35 (10-100)	27.99	58.94 (30-100)	24.85	47.14 (10-100)	23.04	0.14
Perception on general health	51.78 (20-90)	24.38	52.89 (5-85)	16.52	45.87 (5-85)	17.99	0.26

* One-way analysis of variance

Table 5. Results of the subscales of the SF 36 questionnaire according to comorbidities

	Comorbidities				<i>p</i> *
	No		Yes		
	M (range)	SD	M (range)	SD	
Physical functioning	40.58 (0-95)	28.20	52.26 (0-100)	28.48	0.04
Limitation due to physical disabilities	21.51 (0-100)	35.17	41.98 (0-100)	40.14	0.01
Limitation due to emotional difficulties	41.86 (0-100)	45.47	53.45 (0-100)	44.97	0.21
Vitality and energy	43.60 (10-85)	17.46	48.96 (5-85)	17.41	0.13
Mental health	56.55 (20-100)	18.32	59.54 (12-100)	17.51	0.41
Social functioning	49.70 (0-100)	24.16	57.07 (12.50-100)	22.66	0.12
Physical pain	44.41 (10-100)	23.03	53.11 (10-100)	24.88	0.08
Perception on general health	48.48 (15-90)	21.28	47.83 (5-85)	16.77	0.86

* t test

No significant difference was obtained concerning the type of surgery performed in physical functioning (One-way analysis of variance; $F=1.240$; $p=0.30$), limitation due to physical difficulties ($F=0.617$; $p=0.60$), limitation due to emotional difficulties ($F=2.070$; $p=0.11$), vitality and energy ($F=0.053$; $p=0.98$), mental health ($F=0.576$; $p=0.63$), social functioning ($F=1.131$; $p=0.34$), body pain ($F=1.321$; $p=0.27$), and perception of general health ($F=0.731$; $p=0.53$) after musculoskeletal surgery and rehabilitation.

Discussion

The lowest assessment of the quality of life of the participants in this research was expressed in the aspect of limitations due to physical difficulties. Male participants rated a higher quality of life after surgery and rehabilitation compared to female participants. Also, the participants who have various

comorbidities evaluate their quality of life as higher than the participants without comorbidities.

Through general demographic data, a difference in diseases of the musculoskeletal system by gender is visible. Women at an older age are often affected by osteoarthritis, caused by the aging process itself, but additionally stimulated by menopause and the lack of hormones which enhance bone health (21). The number of women undergoing musculoskeletal system surgeries is significantly higher than the number of men (21). In addition to the above, women also experience more serious symptoms and disability caused by the disease, and despite that, women often avoid visiting the doctor due to problems with movement and pain, although they decide to undergo surgery in equal numbers as members men (21). The results of this research indicate that significantly better physical functioning is shown by male participants compared to women. Global research indicates that a greater number of comorbidities is associated with an increased level of pain, reduced physical function, and a worse quality of life (22, 23).

There are no significant differences in limitations due to emotional difficulties according to demo-

graphic and surgery-related variables. The results are the identical according to the type of surgery as well as according to comorbidities, which means that emotional difficulties in this study are lower in diseases, surgery, and rehabilitation of the musculoskeletal system compared to other difficulties. However, emotional difficulties are present and are estimated to be lower than in the general population (17). The results of this research indicate that male participants show significantly better mental health, vitality, and energy compared to female participants. Also, women lose vitality as a result of the surgical procedure, and they often develop depression due to a change in condition or dissatisfaction with their abilities (24, 25).

Significantly better social functioning in this research is shown by male participants compared to women. Rehabilitation after orthopedic surgery is not a guarantee of the return of total mobility, and in combination with the age of the participants, there is a decline in physical function. In women, it often implies the loss of the family role as a caregiver, and beginning of taking care of themselves (26).

There are no significant differences in physical pain according to demographic data and variables related to surgery in this study, but pain is present and other studies indicate that pain is the cause of a large number of other problems (27).

In this research, male participants showed a significantly better perception of general health compared to female participants. Other studies show equal results between the sexes, without significant differences in the perception of health (28).

The results of the research by Gordon et al. (2014) indicate that the age of the participants is negatively related to physical functioning, vitality and energy, psychological health, and general health, that is, the older the participants are, the worse the physical functioning, vitality and energy, psychological and general health. Older people assess their health worse than younger people. The greater the difference in age, the greater the difference in assessment (29). In this research, the younger participants estimated their limitations due to physical difficulties as significantly worse than the older participants. The results obtained indicate that younger participants perceive their condition and quality of life as worse because they are suddenly limited in performing activities due to poor health, while older participants

have come to terms with the fact that they are limited due to physical difficulties and do not perceive their current condition as dramatically. Furthermore, the results of other research indicate that problems arise through the perception of one's state and the influence of one's thoughts on the quality of life (30).

The participants with comorbidities rate their physical functioning significantly better compared to participants without comorbidities. Other studies indicate the opposite: comorbidities reduce the quality of life and physical function (31). The opposite assessment of the participants in this study compared to the results of other studies could be explained through the subjectivity of the assessment, meaning that people with comorbidities better assess their physical function as part of reduced function following surgery due to a previous worse condition caused by comorbidities. A significantly higher limitation due to physical difficulties is estimated by participants without comorbidities compared to the participants with comorbidities. The reduction of physical function and movement limitation is directly related to comorbidities (32, 33). The participants without comorbidities have a harder time accepting new difficulties and adapting, and thus negatively assess the quality of life, which is a subjective assessment (34).

The limitation of this research is that the participants came to rehabilitation at different times, between six and twelve weeks after the surgery, which could affect the perception of the quality of life.

Conclusion

The results of the conducted research indicate that after musculoskeletal system surgery and rehabilitation, the participants assess the quality of life at the lowest level in terms of limitations due to physical difficulties. Male participants estimate a higher quality of life after surgery and rehabilitation compared to females, through better physical functioning, assessment of greater vitality and energy, better psychological health, better social functioning, and a better perception of general health. Poorer quality of life is assessed by younger participants and participants without comorbidities.

References

1. Pravilnik o uvjetima i načinu ostvarivanja prava iz obveznog zdravstvenog osiguranja za bolničko liječenje medicinskom rehabilitacijom i fizikalnom terapijom u kući. Pravilnik, NN 46/2007-1564. Available from: https://narodne-novine.nn.hr/clanci/sluzbeni/2007_05_46_1564.html. Accessed: 23.11.2023. Croatian.
2. Kostanjsek N. Use of The International Classification of Functioning, Disability and Health (ICF) as a conceptual framework and common language for disability statistics and health information systems. *BMC Public Health*. 2011;11 Suppl 4(Suppl 4):S3. <https://doi.org/10.1186/1471-2458-11-S4-S3>
3. Uremović M, Davila S. Rehabilitacija ozljeda lokomotornog sustava. 1st ed. Zagreb: Medicinska naklada; 2018. Croatian.
4. Laker SR, Adair WA 3rd, Annaswamy TM, Frank LW, Hatzakis M Jr, Hubbell SL, et al. American Academy of Physical Medicine and Rehabilitation Position Statement on Definitions for Rehabilitation Physician and Director of Rehabilitation in Inpatient Rehabilitation Settings. *PMR*. 2019;11(1):98-102. <https://doi.org/10.1002/pmrj.12052>
5. Wade DT. What is rehabilitation? An empirical investigation leading to an evidence-based description. *Clin Rehabil*. 2020;34(5):571-83. <https://doi.org/10.1177/0269215520905112>
6. Villa Forte A. Introduction to the Biology of the Musculoskeletal System. *MSD Manual*. 2022.
7. Williams A, Kamper S, Wiggers JH, O'Brien KM, Hopin L, Wolfendern L, et al. Musculoskeletal conditions may increase the risk of chronic disease: a systematic review and meta-analysis of cohort studies. *BMC Med*. 2018;16:167. <https://doi.org/10.1186/s12916-018-1151-2>
8. Haraldstad K, Wahl A, Andenæs R, Andersen JR, Andersen MH, Beisland E, et al. A systematic review of quality of life research in medicine and health sciences. *Qual Life Res*. 2019;28(10):2641-50. <https://doi.org/10.1007/s11136-019-02214-9>
9. Vuletić G, ur. Kvaliteta života i zdravlje. 1st ed. Osijek: Hrvatska zaklada za znanost; 2011. Croatian.
10. Kovač B. Mjerenje kvalitete života vezane uz zdravlje kao mjerilo uspješnosti zdravstvene skrbi. *Zdravstveni glasnik*. 2017;3(1):86-93. <https://doi.org/10.47960/2303-8616.2017.5.86>. Croatian.
11. Despot Lučanin J. Komunikacija u zdravstvenom timu. *Fizikalna i rehabilitacijska medicina*. 2012;24:105-7. Croatian.
12. Suter-Riederer S, Mahrer Imhof R, Gabriel C, Kesslering J, Schnepf W, Imhof L. Consenting on principles of rehabilitation nursing care: a delphi study. *Rehabil Nurs*. 2018;43(6):35-41. <https://doi.org/10.1097/rnj.000000000000111>
13. Shirozhan S, Arsalani N, Seyed Bagher Maddah S, Mohammadi Shahboulaghi F. Barriers and facilitators of rehabilitation nursing care for patients with disability in the rehabilitation hospital: A qualitative study. *Front Public Health*. 2022;10:931287. <https://doi.org/10.3389/fpubh.2022.931287>
14. Gutenbrunner C, Stievano A, Nugraha B, Stewart D, Catton H. Nursing - a core element of rehabilitation. *Int Nurs Rev*. 2021;69(1):13-9. <https://doi.org/10.1111/inr.12661>
15. Havrilla E. Rehabilitation concepts for the acute care nurse. *Madridge J Nurs*. 2017;2:72-5.
16. Badura-Brzoza K, Piegza M, Gorczyca P. Quality of life and sociodemographic data in patients after spine surgery. *Open Medicine*. 2012;7(4): 557-63.
17. Jureša V, Ivanković D, Vuletić G, Babić-Banaszak A, Srček I, Mastilica M et al. The Croatian Health Survey - SF-36: I. General Quality of Life Assessment. *Collegium antropologicum*. 2000;24(1):69-78. <https://hrcaak.srce.hr/9989>
18. Ranawat AS, Ranawat CS. Pain Management and Accelerated Rehabilitation for Total Hip and Total Knee Arthroplasty. *J Arthroplasty*. 2007;22(7 Suppl):12-5. <https://doi.org/10.1016/j.arth.2007.05.040>
19. Marušić M, i sur. Uvod u znanstveni rad u medicini. 5th ed. Zagreb: Medicinska naklada; 2014. Croatian.
20. Lins L, Carvalho FM. SF-36 total score as a single measure of health-related quality of life: Scoping review. *SAGE Open Med*. 2016;4:2050312116671725. <https://doi.org/10.1177/2050312116671725>
21. Hawker GA, Wright JG, Coyte PC, Williams JI, Harvey B, Glazier R, Badley EM. Differences between men and women in the rate of use of hip and knee arthroplasty. *N Engl J Med*. 2000;342(14):1016-22. <https://doi.org/10.1056/NEJM200004063421405>
22. Rat AC, Guillemin F, Osnowycz G, Delagoutte JP, Cuny C, Mainard D, Baumann C. Total hip or knee replacement for osteoarthritis: Mid- and long-term quality of life. *Arthritis Care Res*. 2010;62(1):54-62. <https://doi.org/10.1002/acr.20014>
23. Peter WF, Dekker J, Tilbury C, Tordoir RL, Verdegaal SH, Onstenk R, et al. The association between comorbidities and pain, physical function and quality of life following hip and knee arthroplasty *Rheumatol Int*. 2015;35(7):1233-41. <https://doi.org/10.1007/s00296-015-3211-7>
24. Katz JN, Wright EA, Guadagnoli E, Liang MH, Karlson EW, Cleary PD. Differences between men and women undergoing major orthopedic surgery for degenerative arthritis. *Arthritis Rheum*. 1994;37(5):687-94. <https://doi.org/10.1002/art.1780370512>
25. Askari R, Kerawala AA, Khan MH, Rasheed N, Khatoon MA. Pre-and post-operative anxiety and depression levels in orthopedic surgery. *RADS J Pharm Pharm Sci*. 2021;9(3):169-74.
26. Ng CY, Ballantyne JA, Brenkel IJ. Quality of life and functional outcome after primary total hip replace-

- ment: A Five-Year Follow-Up. *J Bone Joint Surg Br.* 2007;89-B(7):868-73. <https://doi.org/10.1302/0301-620X.89B7.18482>
27. Leggett H, Scantlebury A, Byrne A, Harden M, Hewitt C, O'Carroll G, et al. Exploring what is important to patients with regards to quality of life after experiencing a lower limb reconstructive procedure: a qualitative evidence synthesis. *Health Qual Life Outcomes.* 2021;19:158. <https://doi.org/10.1186/s12955-021-01795-9>
 28. Kaleta D, Polańska K, Dziankowska-Zaborszczyk E, Hanke W, Drygas W. Factors influencing self-perception of health status. *Cent Eur J Public Health.* 2009;17(3):122-7. <https://doi.org/10.21101/cejph.b0017>
 29. Gordon M, Greene M, Frumento P, Rolfson O, Garellick G, Stark A. Age- and health-related quality of life after total hip replacement. *Acta Orthop.* 2014;85(3):244-9. <https://doi.org/10.3109/17453674.2014.916492>
 30. March LM, Cross MJ, Lapsley H, Brnabic AJ, Tribe KL, Bachmeier CJ et al. Outcomes after hip or knee replacement surgery for osteoarthritis. A prospective cohort study comparing patients' quality of life before and after surgery with age-related population norms. *Med J Aust.* 1999;171(5):235-8.
 31. Snell DL, Dunn JA, Jerram KAS, Hsieh CJ, DeJong G, Hooper GJ. Associations between comorbidity and quality of life outcomes after total joint replacement. *Qual Life Res.* 2021;30(1):137-44. <https://doi.org/10.1007/s11136-020-02610-6>
 32. Radner H, Smolen JS, Aletaha D. Impact of comorbidity on physical function in patients with rheumatoid arthritis. *Ann Rheum Dis.* 2010;69(3):536-41. <https://doi.org/10.1136/ard.2009.118430>
 33. Koczwara B, Deckx L, Ullah S, van den Akker M. Impact of comorbidities on physical function and survival of middle-aged, as compared to older, individuals with cancer. *Support Care Cancer.* 2022;30(2):1625-32. <https://doi.org/10.1007/s00520-021-06567-1>
 34. Jankowska-Polańska B, Ilko A, Wleklik M. Influence the acceptance of the disease on quality of life of patients with hypertension. *Arter Hypertens.* 2014;18(3):142-50.

KVALITETA ŽIVOTA BOLESNIKA NAKON OPERACIJE LOKOMOTORNOG SUSTAVA I PROVEDENE REHABILITACIJE

Sažetak

Uvod. Rehabilitacija podrazumijeva oblik zdravstvene zaštite koji je usmjeren na vraćanje i održavanje tjelesne snage i mobilnosti s krajnjim ciljem postizanja najboljih mogućih rezultata.

Cilj. Ispitati kvalitetu života bolesnika nakon operacije lokomotornog sustava i provedene rehabilitacije u odnosu na dob, spol, dijagnozu i komorbiditete.

Metode. Ispitivanje je provedeno kao presječna studija. Sudionici su bolesnici nakon operacije lokomotornog sustava i provedene rehabilitacije na stacionarnom liječenju u Lječilištu Bizovačke toplice u trajanju od 21 dan. Primijenjen je anonimni anketni upitnik s demografskim podacima te upitnik samo-procjene kvalitete života SF-36.

Rezultati. U istraživanju je sudjelovalo 96 sudionika, ženskog spola bilo ih je 62 (64,6 %), operaciju kuka imalo je 44 (45,8 %) te ih 43 (44,8 %) nema komorbiditeta. Srednja je vrijednost dobi sudionika 63 godine (raspona od 18 do 91 godine). Sudionici u dobi od 50 godina i mlađi znatno lošije procjenjuju svoje ograničenje zbog tjelesnih poteškoća. Sudionici muškog spola procjenjuju statistički značajno bolju kvalitetu života nakon operacije i rehabilitacije u usporedbi sa ženskim spolom, kroz bolje tjelesno funkcioniranje, procjenu veće vitalnosti i energije, bolje psihičko zdravlje, bolje socijalno funkcioniranje te bolju percepciju općeg zdravlja. Različite dijagnoze sudionika i provedeni operacijski zahvati nisu značajno povezani s kvalitetom života nakon operacije lokomotornog sustava i provedene rehabilitacije.

Zaključak. Najniža procjena kvalitete života sudionika iskazana je u aspektu ograničenja zbog tjelesnih poteškoća. Lošiju kvalitetu života procjenjuju sudionici ženskog spola, mlađi te sudionici bez komorbiditeta.

Ključne riječi: kvaliteta života, lokomotorni sustav, rehabilitacija, SF-36