

HIP ARTHROPLASTY IN MONTENEGRO: SATISFACTION AND EXPERIENCE OF HIP ARTHROPLASTY PATIENTS WITH HEALTH CARE IN CORRELATION WITH COMORBIDITY

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ARTROPLASTIKA KUKA U CRNOJ GORI: ZADOVOLJSTVO I ISKUSTVO PACIJENATA SA ARTROPLASTIKOM KUKA ZDRAVSTVENOM ZAŠTITOM U KORELACIJI S KOMORBIDITETOM

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ABSTRACT

Objective: The goal of this research was to determine the importance of hip arthroplasty in Montenegro through patient satisfaction and experience with health care, as well as the impact of comorbidities on the recovery and general health of patients after surgery.

Methods: This retrospective study was conducted among 184 patients who underwent hip replacement in Montenegro, at the Clinical Center of Montenegro and General Hospital Berane. We collected data from October 2019 to February 2020 at outpatient control visits, where respondents voluntarily filled out the questionnaire.

Results: Based on the responses received after the survey, a high level of patient satisfaction with health care was established. The average score of hip pain before surgery in the subjects was 4.35 ± 0.86 , and after the surgery there was a statistically significant improvement ($t = 23.517$; $p=0.001$), and the average score was 2.46 ± 0.86 . Hip-related difficulties were rated as 4.61 ± 0.92 before surgery and 3.09 ± 0.95 after surgery. Using the ANOVA test, a statistically significant difference was found in the quality of mental and general health of subjects with hip surgery in terms of comorbidity present ($p < 0.05$).

Conclusion: The research results indicated that greater satisfaction with the health care of patients with hip arthroplasty predicts a better quality of recovery. Respondents with metabolic and digestive diseases and respondents with cardiovascular diseases gave the worst ratings of the quality of general and mental health after the surgery.

Key words: arthroplasty, replacement, hip; patient satisfaction; delivery of health care; comorbidity.

INTRODUCTION

International research shows that hip osteoarthritis (OA) is a major cause of disability worldwide and thus occupies an important place among public health problems (1). It is a disease of the developed world where men have a higher prevalence before the age of 50, while

SAŽETAK

Cilj. Cilj ovog istraživanja bio je da se kroz zadovoljstvo i iskustvo pacijenata zdravstvenom zaštitom utvrdi značaj artroplastike kuka u Crnoj Gori, kao i uticaj komorbiditeta na oporavak i opšte zdravlje pacijenata nakon operacije.

Metode: Ovu retrospektivnu studiju sprovedi smo među 184 pacijenta kojima je urađena zamjena kuka u Kliničkom centru Crne Gore i Opštoj bolnici Berane u Crnoj Gori. Podatke smo prikupljali od oktobra 2019. do februara 2020. godine na ambulantno kontrolnim posjetama, gde su ispitanici dobrovoljno popunili upitnik.

Rezultati. Na osnovu dobijenih odgovora nakon ankete utvrđen je visok nivo zadovoljstva pacijenata zdravstvenom zaštitom. Prosečan skor bola u kuku prije operacije kod ispitanika bio je $4,35 \pm 0,86$, a nakon operacije došlo je do statistički značajnog poboljšanja ($t = 23,517$; $p = 0,001$), a prosječna ocjena bila je $2,46 \pm 0,86$. Poteškoće vezane za kuk ocijenjene su sa $4,61 \pm 0,92$ prije operacije i $3,09 \pm 0,95$ nakon operacije. Korišćenjem ANOVA testa utvrđena je statistički značajna razlika u kvalitetu mentalnog i opšteg zdravlja ispitanika sa operacijom kuka u pogledu prisutnog komorbiditeta ($p < 0,05$).

Zaključak. Rezultati istraživanja pokazali su da veće zadovoljstvo zdravstvenom zaštitom pacijenata sa artroplastikom kuka predviđa bolji kvalitet oporavka. Ispitanici sa metaboličkim i digestivnim bolestima i ispitanici s kardiovaskularnim oboljenjima najlošije su ocijenili kvalitet opšteg i mentalnog zdravlja nakon operacije.

Ključne riječi: artroplastika; zamena kuka; zadovoljstvo pacijenata; pružanje zdravstvene zaštite; komorbiditet.

women have a higher prevalence after that. The lifetime risk of symptomatic hip OA is 18.5% for men and 28.6% for women (2, 3). One of the most effective and commonly used surgical methods in the treatment of advanced degenerative hip changes is hip arthroplasty. This is a surgical treatment that relieves the destruction of the joint, reduces pain and improves the quality of life (4, 5).

Projections show that the demand for hip replacement will increase, indicating the need for an increased focus on treatment outcome assessment, health care, and health-related quality of life expectancy (6). Comorbidities are generally defined as the presence of more than one distinct disease or medical condition in a single individual (7). There is clear evidence of a negative association between comorbidities and short- and long-term functional outcomes after arthroplasty, which is the motivation for this study (8).

By creating satisfaction with great compassion, it allows healthcare professionals to form close relationships with patients, but little is known about how pre-admission and post-discharge care experiences influence patient satisfaction ratings (9, 10). Many factors influence the course of postoperative recovery, including patient characteristics, patient expectations, type of surgery and anesthesia, comorbidity, and social factors. Timely discharge from the hospital is also important, because early discharge from the hospital can lead to more difficult patient recovery and unpleasant symptoms (11-14).

Montenegro has 19 orthopedic specialists who received 2201 patients in the orthopedic hospital in 2020, and 2352 in 2021. These data indicate an increase in the health needs of the population of our country (15).

This research aims to show the importance and role of health care and rehabilitation in the absence of comorbidities in the process of recovery and maintenance of full mobility of patients with a hip prosthesis, improving the quality of life and patient satisfaction.

METHODS

Study design

This descriptive and retrospective study was conducted among 184 patients who underwent hip arthroplasty in the Clinical Center of Montenegro and in the General Hospital of Berane in Montenegro. The criteria for inclusion in the study were that the respondents were operated on in the last five years at the Clinic Center of Montenegro and General Hospital Berane. The data was collected in the period during October 2019 to February 2020 at outpatient follow-up visits, where respondents voluntarily filled out the questionnaire.

In the study, we used a questionnaire Hip disability and Osteoarthritis Outcome Score (HOOS), for assessment of hip disability, and data from nursing records. Data from nursing records included patients' experiences of communication with doctors and nurses, responsiveness of hospital staff, communication about medications, hospital cleanliness and quietness, transition to posthospital care, and overall evaluation of the hospital. To present the data quantitatively (responses are scored on

a scale of 0 to 4 - Likert scale) and to compare the clinical condition of patients before and after surgery, we presented the responses numerically, with the lowest score representing the condition with the fewest symptoms and the best clinical picture and the highest score representing the condition with the most severe clinical picture.

The study was approved by the Ethics Committee of Public Health Institutions, Clinical Center of Montenegro (decision no. 03/01-29824/1), General Hospital Berane (decision no. 5572).

Statistical Analysis

IBM SPSS 20.0 running under Microsoft Windows was used for the data processing environment. The results are presented tabularly and graphically. Categorical data are presented with absolute and relative frequencies. Numerical data are described by the arithmetic mean and standard deviation. The Anova test was used to show the results of the correlation between comorbidity and general and mental health.

RESULTS

When analyzing the gender structure of the 184 respondents, it was found that 72.3% of the respondents were female and 27.7% were male, which was a statistically significant difference when using the chi-square test, $\chi^2 = 36.543$; $p = 0.001$. Of the total number of respondents, 56% had secondary education, 24.5% had elementary education, 9.2% of the respondents had university education, and 10.3% of the respondents had higher education. The largest number of respondents had the status of pensioner, 65.2% in total, while 22.8% were employed and 12% were unemployed. The average age of the respondents was 69.57 ± 11.85 years. The oldest respondent was 95 years old and the youngest was 36 years old. When the Anova test was applied, no statistically significant difference was found in the mean age of the respondents in terms of gender structure, $F = 0.606$; $p = 0.437$. The mean age of the female respondents was 69.99 ± 12.40 years and that of the male respondents was 68.47 ± 10.33 years (Table 1).

A large number of respondents showed a high level of satisfaction with the way healthcare professionals communicated with patients (treating patients with kindness and respect, actively listening to patients while they are in the hospital and always getting help) (Figure 1).

During their hospital stay, 179 respondents required some type of assistance when going to the toilet or using the bed. Regarding requested help from nurses or other hospital staff, 165 respondents answered that they always received this help, 13 respondents answered that they often received this type of help, and only 2 respondents

Table 1. Sociodemographic characteristics of respondents.

Variable					Number	%		χ^2	p
Gender	Male				51	27.7		36,543	*0.001
	Female				133	72.3			
Educational status	Elementary school				45	24.5		104,783	*0.001
	Secondary school				103	56.0			
	Post-secondary vocational school				19	10.3			
	Faculty				17	9.2			
Employment status	Unemployed				22	12.0		87,435	*0.001
	Employed				42	22.8			
	Retired				120	65.2			
Respondents' age	N	X	SD	Except	95% CI		Minimum	Maximum	
					Lower	Upper			
Male	51	68.47	10.33	1.44	65.56	71.37	36.00	84.00	
Female	133	69.99	12.40	1.07	67.86	72,1201	38.00	95.00	
In total	184	69.57	11.85	0.87	67.84	71.2955	36.00	95.00	

Note: χ^2 = Chi-square statistics; * = Significant difference; p = Statistical significance

Table 2. Ambient analysis hospitals.

Variable		Number	%	Valid %	Cumulative %
Help at going to the bathroom or using beds	Sometimes	2	1.1	1.1	1.1
	Often	13	7.1	7.2	8.3
	Always	165	89.7	91.7	100.0
Controlling pain during hospital stay	Often	18	9.8	9.8	9.8
	Always	165	89.7	90.2	100.0
The staff effect on the pain reduction during hospital stay	Often	14	7.6	7.6	7.6
	Always	170	92.4	92.4	100.0
Information about the applied new medicine	Never	2	1.1	1.2	1.2
	Sometimes	3	1.6	1.8	3.0
	Often	3	1.6	1.8	4.7
	Always	161	87.5	95.3	100.0
Information of the unwanted effects of new medicine	Never	3	1.6	1.8	1.8
	Sometimes	6	3.3	3.5	5.3
	Often	6	3.3	3.5	8.8
	Always	156	84.8	91.2	100.0

Table 3. Correlation postoperative quality overall and mental health in a relationship on the comorbidities respondents

Variable		Sum of Squares	df	Mean Square	F	Sig.
Overall health	Between Groups	16,935 th most common	5	3.387	4,403	*0.001
	Within Groups	136,929 th most common	178	0.769		
	Total	153,864 th most common	183			
Mental health	Between Groups	30,540 th most common	5	6.108	7,427	*0.000
	Within Groups	146,394 th most common	178	0.822		
	Total	176,935	183			

Note: Mean = Arithmetic mean; F = ANOVA test value; Sig = Statistical significance; * = Significant difference;

answered that this type of help was sometimes provided. Of the total number of respondents, 165 responded that pain was always controlled during hospitalization, and 18 respondents said that pain was often controlled during hospitalization. A total of 170 respondents answered that medical staff always did everything possible to relieve pain during their hospital stay. A total of 164 respondents were given medications during their hospital stay that they had not taken before. When analyzing the responses regarding informing patients about the indication of the medication administered, it was found that 161 respondents were always informed, 3 respondents were often and sometimes informed, and 2 respondents answered that they were not informed. The situation was similar with the information about the side effects of the new drug. Most respondents answered that they were always informed about possible side effects: six respondents were often and sometimes informed, and 3 respondents were never informed about the side effects of a new drug (Table 2). Figure 2 shows the ratings of the hospital given by the respondents after treatment. Most respondents (n=121) gave the highest score of 10, with a total of 52 respondents giving a score of 9 and 10 respondents giving a score of 8. Only 1 respondent gave the hospital a score of 7. A paired t-test on general and mental health status showed that the mean score for general health was 3.52 ± 0.91 and for mental health was 2.92 ± 0.98 ($t=8.862$; $p=0.00$) (Figure 3).

Application of the Anova test revealed a statistically significant difference in the quality of mental and general health of the respondents with hip surgery with respect to the presence of comorbidities ($p < 0.05$) (Table 3). The quality of general and mental health was best in respondents without comorbidities. Respondents with metabolic and digestive diseases and respondents with cardiovascular diseases gave the worst ratings of the quality of general and mental health after the surgery (Figure 4). The average score of hip pain before the surgery in the respondents was 4.35 ± 0.86 , and after the surgery, there was a statistically significant improvement ($t = 23.517$; $p = 0.001$), and the average score was 2.46 ± 0.86 . (Table 4).

The respondents' awareness of their hip problem before the operation was 4.79 ± 0.79 , and after the operation, it was 4.52 ± 1.06 . The respondents rated the frequency of adjusting their lifestyle as 4.76 ± 0.78 before the operation and 4.49 ± 1.06 after the operation. The feeling of insecurity before surgery was evaluated with an average score of 4.69 ± 0.75 , and after surgery, it was 3.46 ± 1.06 . Overall, hip-related difficulties were rated as 4.61 ± 0.92 before surgery and 3.09 ± 0.95 after surgery (Table 5).

DISCUSSION

Hip arthroplasty is the most common surgery in people in their thirdage of life, and it is more common in the female population. Lyman et al. reported in their study, the aim of which was to evaluate the adequacy of Hip disability and Osteoarthritis Outcome Score (HOOS), for assessment of hip disability after hip arthroplasty, that 57% of which was a slightly older age than in our study but still equivalent to the third age. As life expectancy increases and elective surgery improves the quality of life, age alone is not a factor that affects the outcome of arthroplasty and should not be a limiting factor in deciding who should undergo this surgery. However, because bone quality declines earlier in postmenopausal women than in men of the same age, gender may play a role in deciding the type of fixation (16).

Different risk profiles in terms of gender, age, or health comorbidities, as well as morphologic and functional differences, require personalized risk assessment (17). Research showed that in patients undergoing hip replacement, occupation and poorer preoperative hip function predict higher preoperative expectations. Higher expectations predict greater improvement and higher patient satisfaction. When we analyze our sociodemographic data, we can safely say that this correlates with our results, as only 22.8% of respondents were employed. Postoperatively, most respondents showed that they had met their expectations for medical care and surgical treatment (18).

Table 5. Analysis of quality of life before and after surgery.

Variable		X	N	SD	SEM	t	p
Awareness of hip problem	Before	4.79	184	0.79	0.06	3.519	*0.001
	After	4.52	184	1.06	0.08		
Frequency of adjusting their lifestyle	Before	4.76	183	0.78	0.06	3.938	*0.001
	After	4.49	183	1.06	0.08		
Feeling of insecurity	Before	4.69	183	0.75	0.06	15.255	*0.001
	After	3.46	183	1.06	0.08		
Hip-related difficulties	Before	4.61	184	0.92	0.07	18.258	*0.001
	After	3.09	184	0.95	0.07		

Note: X = Average score; SD = Standard deviation; * = Significant difference; p = Statistical significance

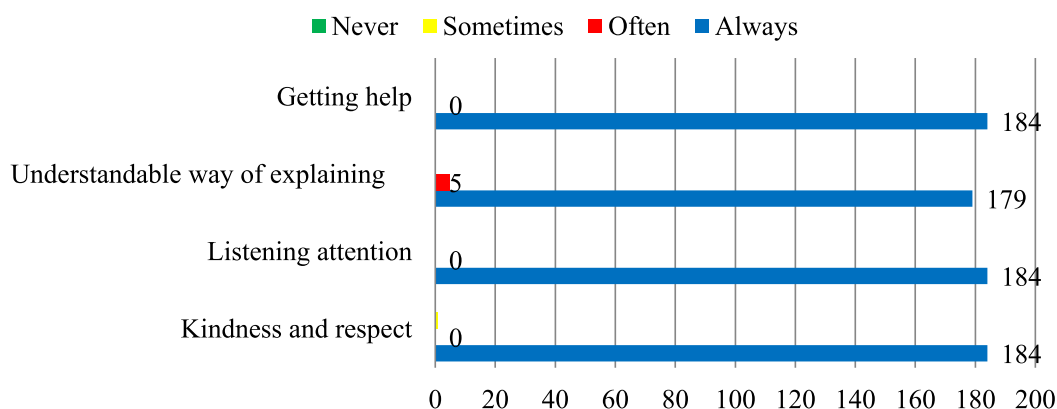


Figure 1. Health analysis care which was provided by healthcare workers.

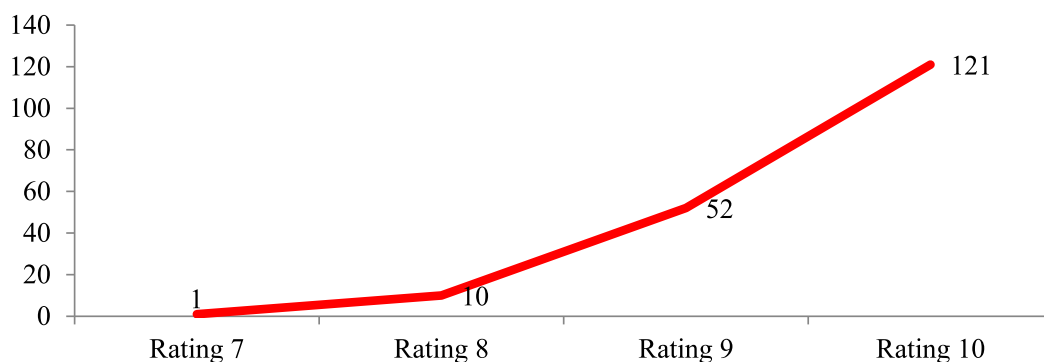


Figure 2. Rating hospitals after staying in it.

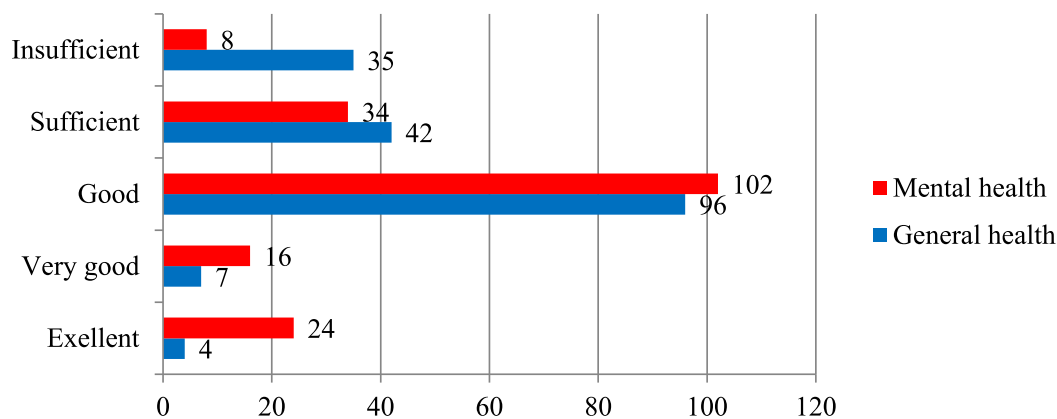


Figure 3. Rating general and mental health.

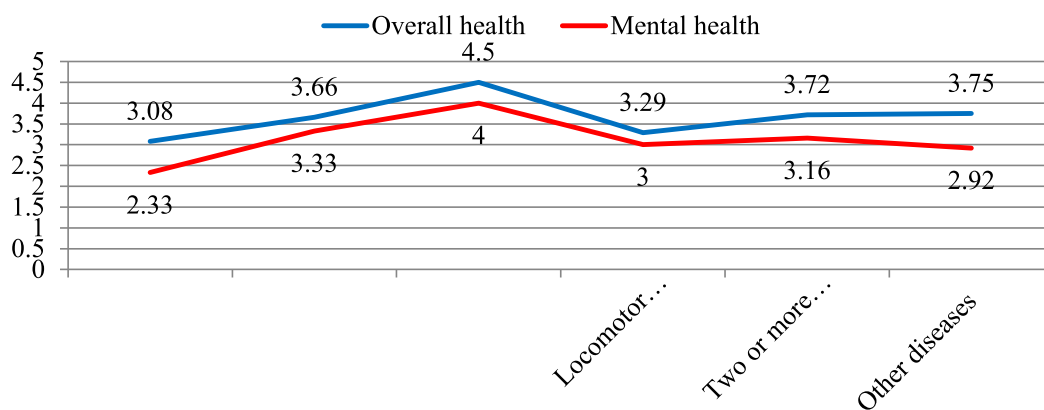


Figure 4. Correlation postoperative quality overall and mental health in a relationship on the comorbidities respondents.

Wang et al. of the 3,026 (43%) patients who returned the survey, 2,814 (93%) indicated that they had experienced care as very good or excellent overall and had rated satisfaction with surgical outcomes as ≥ 7 on a 10-point scale. By analyzing the healthcare, they noted the high level of patient satisfaction with healthcare in this study (19). In a study by Eftekhari et al. examining whether Hospital Consumer Assessment of Healthcare Providers and Systems Survey (HCAHPS), for user assessment of the quality of healthcare services, scores differed between patients undergoing primary joint arthroplasty and revision patients, respondents indicated that they were listened to attentively by nurses and other health care professionals (84.3% of primary arthroplasty versus 72.88% of revision), which partially correlates with our results, because all of our respondents reported that they were listened to attentively and that they felt they clearly understood the purpose of each medication (20). This percentage was also higher in our study.

In addition to positive clinical outcomes, the concept of the patient-centered experience is increasingly an important focus and strategy of many hospital systems (21).

Mistry et al. produced a meta-analysis of factors affecting hospital ratings of total joint arthroplasty. They found that overall hospital assessment was significantly influenced by communication with nurses, responsiveness of hospital staff, communication with physicians, and hospital environment. Interestingly, they found no difference in survey scores when comparing patients with and without postoperative complications (22). Based on our results and these factors, we can safely say that hospitals in Montenegro have a very good rating. The study by Ethgen et al. aimed to review the literature on quality of life after hip replacement assessed by quality-of-life measurement instruments. Medical literature databases Medline and EMBASE were searched. Thirty-two studies examined both hip and knee arthroplasty, and 26 focused only on hip arthroplasty. They agree that hip arthroplasty is effective in improving health dimensions of quality of life. Medical care and physical rehabilitation after hip arthroplasty allow patients to be discharged home more quickly, to recover more quickly, and to be independent in daily activities (23, 24).

When it comes to the self-assessed health status of the respondents, from two national surveys on the health of the population of Montenegro (modified version of the international survey on the measurement of living standards - Living Standards Measurement Survey, LSMS 2008 and 2012), similar results were obtained that showed the difference between adults and young people: less than half of adults considered their health to be bad or average, and women more often assessed their health as average or bad.

Research on the quality of life, lifestyles and health risks of the inhabitants of Montenegro in 2017 was

conducted by the Institute for Public Health of Montenegro with the financial support of the European Union. As expected, the assessment of the state of health worsens with age. In the population of all adults, aged 15 to 64, less than half (45.1%) consider themselves to be in very good health. Almost every third respondent assesses their state of health as "good", and 17.8% as "mediocre". According to their own assessment, 3.7% of adult respondents are in poor health. One out of a hundred adult respondents assesses their state of health as "very bad". In the population of adults aged 15 to 64, 9.4% believe that they get sick more easily than other people. It is interesting that more than a third (36.9%) of Montenegrin adults believe that they are healthier than other people. 8.9% of adults believe that their health will deteriorate, while 68.2% believe that this will not happen. A fairly high percentage in the population of all adults in Montenegro - 68.9% consider their health to be perfect (25).

Poor management of postoperative acute pain can contribute to medical complications. Therefore, all patients undergoing surgery must receive appropriate pain management. The study by Arbab et al. aimed to evaluate the reliability and validity of the German version of the HOOS questionnaire for hip dysfunction in osteoarthritis and outcomes of hip arthroplasty. The German HOOS was studied in 251 respondents before and six months after total hip arthroplasty. All subcategories of the HOOS were found to be excellent between preoperative assessment and postoperative follow-up, consistent with the results of our study (26). In the analysis of quality-of-life parameters, we found in this study that respondents rated awareness of their hip problem as 4.79 ± 0.79 before surgery and 4.52 ± 1.06 after surgery. We conclude that patients have a better quality of life postoperatively.

The presence of comorbid conditions can have a significant impact on patient mortality and postoperative complications (27). Diagnoses such as diabetes, respiratory disease, chronic kidney disease, and depression have all been associated with adverse clinical outcomes, including infection, extended hospital stay, and mortality, after arthroplasty (28). In the studies by Petrović et al., out of the total number of subjects, (35.9%) respondents had one or two comorbidities, most often of a cardiac and neurological nature, which correlates with our research (29). In our study, we concluded that comorbidities were in direct correlation with the outcome of the disease, with metabolic and cardiovascular diseases leading the way.

The user satisfaction survey was examined according to the Professional Methodological Guidelines of the Institute for Public Health of Serbia "Dr. Milan Jovanovic Batut" in primary, secondary and tertiary health care institutions from November 25 to 29, 2019. The average score of the general satisfaction of the users with the

health care provided in specialist-consultative clinics remained unchanged compared to the previous year and is 4.06. The average rating of satisfaction with hospital treatment as a whole is 4.31. Satisfaction with the services of health workers (doctors and nurses) is highly rated in all regions, which correlates with our research (30).

In conclusion, it is quite natural that the opinion of patients is of inestimable importance for quality of health care. The results of the research indicated that greater satisfaction with the health care of patients with hip arthroplasty predicts a better quality of recovery, which also depends on the presence of comorbidities. Respondents with metabolic and digestive diseases and subjects with cardiovascular diseases rated the quality of general and mental health the worst after surgery. It is necessary to investigate and analyze in more detail the impact of the quality of health care and accompanying diseases on the recovery and general health of patients with hip arthroplasty.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest related to this article.

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