ASSESSMENT OF REHABILITATION EFFECTIVENESS FROM THE PATIENT'S PERSPECTIVE BEFORE AND AFTER TOTAL HIP AND KNEE ARTHROPLASTY

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Abstract. *Amid a rapid increase in total hip and knee arthroplasty (THA and TKA) procedures in Uzbekistan, this study aimed to identify discrepancies between patients' expectations prior to surgery and their actual experiences postoperatively.*

Keywords: *total arthroplasty, hip joint, knee joint, patient satisfaction, rehabilitation, patient expectations, physiotherapy, postoperative pain, medical communication.*

Introduction. In Uzbekistan, there has been a significant increase in the number of operations for total endoprosthetics of the hip and knee joints in recent years. According to the Republican Specialized Scientific and Practical Medical Center of Traumatology and Orthopedics, 692 endoprosthetic surgeries were performed in the regions in 2019, and this number increased to 3,486 operations in 2023. In the center itself, the number of such operations increased from 1,089 in 2019 to 3,026 in 2023. In 2022, the Ministry of Health of Uzbekistan reported about 700 free endoprosthetic surgeries, of which 670 were on the hip joint and 28 on the knee. These data indicate the rapid development of high-tech orthopedic care in the country, which allows for improving the quality of life for patients with musculoskeletal disorders.

Such an increase in the volume of operations can be explained by public opinion about the positive impact of total endoprosthetics on the quality of life of patients. Both hip replacement and knee replacement demonstrate high clinical effectiveness, contributing to pain syndrome reduction and improvement of joint functional condition at acceptable economic costs [3,4].

Despite significant progress in the development of orthopedic care in Uzbekistan and the increase in the number of joint total endoprosthetics (TE) operations, the issue of patient satisfaction remains complex and multifaceted. As in international practice, there are cases in the republic where patients' subjective expectations do not coincide with the objective outcomes of treatment, especially after knee joint endoprosthetics (JE).

Similar to foreign data, it can be assumed that in Uzbekistan, there is also a proportion of patients experiencing dissatisfaction after surgery, despite its technical success. In the absence of large-scale longitudinal studies in the country, it is advisable to rely on international benchmarks. Thus, according to the results of one of the foreign prospective studies, the level of patient dissatisfaction after 5 years of PCI was 12.7% [5], and according to a number of other sources - up to 20% [6-8]. A meta-analysis of 19 studies indicates an average level of satisfaction after TCS at 75% after 5 years [9].

In the context of Uzbekistan, such indicators require local verification, taking into account the cultural, organizational, and infrastructural characteristics of medical care. One of the key factors influencing the level of satisfaction is the degree of correspondence between patient expectations and real results in the postoperative period: the level of pain, functional activity, recovery time, and the quality of rehabilitation measures.

Thus, in the context of the rapid expansion of TEJ practice in Uzbekistan, the implementation of a patient-reported outcome measures (Primer-Reported Outcome Measures - PROMs) system is becoming extremely relevant, as well as conducting localized studies to study the level of satisfaction with a focus on a comparative analysis after TCS and TEHJ. This will allow for the adaptation of international approaches to the realities of the national healthcare system and increase the effectiveness of orthopedic care in the long term.

Patient dissatisfaction after total endoprosthetics of joints (TEJ), especially in the long term, is often associated with an insufficient quality of life. This includes limitations in daily activities, decreased social engagement, and pronounced psychological and emotional difficulties [10]. Considering that approximately 25% of patients after TES remain unsatisfied with treatment results, it is crucial to identify and understand the factors contributing to this condition.

Often, the reasons for dissatisfaction are the discrepancy between the patient's expectations and the reality of postoperative recovery. In particular, many patients expect the pain to completely disappear and quickly return to their usual level of activity. However, in practice, they face a prolonged recovery period, limited mobility, the need for regular physiotherapy, and emotional instability, which can lead to disappointment even with technically successful surgery.

A number of studies indicate that dissatisfaction can be related to the patient's individual characteristics, including age, gender, excess body weight, presence of concomitant chronic diseases, psycho-emotional status, and the level of functional activity before surgery [10]. At the same time, not only medical and physiological indicators but also the subjective perceptions of patients, in particular, their preliminary expectations and the degree of psychological readiness for surgery, are of primary importance.

The quality of communication between medical personnel and the patient plays a special role. Insufficient information about the progress of the operation, possible risks, duration, and difficulties of the rehabilitation process, as well as the lack of clear recommendations regarding the recovery period, can lead to distorted expectations. At the same time, physiotherapy as a crucial component of successful functional recovery is often underestimated by patients before intervention. The lack of sufficient interaction and explanation from specialists can lead to low adherence to the rehabilitation program and, consequently, unsatisfactory outcomes.

Considering the increasing number of patients who have undergone TES, as well as the increasing attention to results based on self-assessment (Patient-Reported Outcomes), a deep understanding of patients' motivation, concerns, and expectations is of particular importance. Timely discussion with the patient of possible difficulties, realistic recovery times, and the role of rehabilitation can be an important tool for improving the level of satisfaction with surgical treatment results.

The purpose of this study is to assess changes in patient expectations and attitudes before and after total joint endoprosthetics, with subsequent identification of key factors influencing subjective satisfaction with treatment.

Material and methods of research. After receiving approval from the institutional ethics committee, a clinical descriptive study with a cross-sectional design was conducted. As part of the preparation for the study, senior authors developed two structured questionnaires: one consisting of 10 questions designed to assess patients' expectations in the preoperative stage, and the second comprising 13 questions aimed at studying their subjective experience in the postoperative period. Questionnaire tools allowed for the systematization of patients' perception of key aspects of medical intervention, including risk awareness, expected recovery duration, pain level, and physical activity, as well as assessing the correspondence between expectations and real treatment outcomes.

Inclusion criteria for the preoperative questionnaire: all new and observed patients who have not yet undergone total joint endoprosthetics (TEJ). The postoperative questionnaire included patients who had more than 6 weeks since TEJ at the time of filling out the questionnaire.

All patients had the opportunity to refuse to participate in the survey. Patients who refused to fill out the questionnaire were excluded from the analysis.

Table 1.

Questions compared before and after surgery

№	Question
1	What operation are you going to undergo / what operation have you undergone?
2	Where will you go/where did you undergo surgery?
3	How long were you prepared to wait for the operation? (the question is only in the preoperative survey)
4	Did you have enough time to ask questions to your surgeon/surgical team before the operation?
5	Which of the following factors are risk factors for total hip/knee joint endoprosthetics?
6	How long do you expect to stay/be in the hospital or surgery center after the surgery?
7	How long do you think recovery will take / how long did recovery take?
8	How long do you think the physiotherapy will last / how many weeks have you gone through?
9	How many additional weeks of physiotherapy do you think you still need? (only in the postoperative survey)
10	After full recovery, what level of pain do you expect / what level of pain did you experience after surgery?
11	Based on your activity level before surgery, what do you expect/how active are you after surgery?
12	Did you have the opportunity to communicate with the surgeon after the operation? (only in the postoperative survey)
13	Which visit to the surgeon do you consider the most important? (only in the postoperative survey)
14	Did the surgeon offer you a long-term observation plan? (only in the postoperative survey)

For three months, questionnaires were distributed among five orthopedic surgeons who completed clinical residency in joint endoprosthetics at the Republican Specialized Scientific and Practical Medical Center of Traumatology and Orthopedics of the Samarkand branch with a high surgical volume. Surveys were conducted at the outpatient clinic.

Before the planned visit, patients received a corresponding questionnaire from the registry office. They were instructed not to indicate any personal information in the questionnaire. The registrar's staff collected the completed questionnaires before the patient was called to the office.

The authors did not compare specific answers with specific patients. The questionnaires were designed to compare patients' expectations before surgery with patients' real experience after surgery regarding various aspects of preoperative care.

The first block of questions was aimed at determining whether patients believed they had been given sufficient time to discuss matters related to the surgery. The second part of the questionnaire assessed patients' understanding of surgical risks, expected hospitalization duration, and recovery time. The last part was devoted to the physiotherapy experience, pain sensations, and the expected level of functional activity after the intervention. All questionnaires were collected in a special questionnaire container, after which the data were transferred to Microsoft Excel (version 16.85, Microsoft, Redmond, WA) for descriptive analysis.

Qualitative data are presented as percentages of the total number of respondents. To assess the differences between the two cohort groups, a proportional comparison test (2-proportion test) was used. Statistical significance was established at a level of $p < 0.05$.

Results and discussion. Responses were received from 156 patients before surgery and 134 patients after surgery. The questions posed to the respondents are presented in Table 1. Table 2 shows the distribution by type and localization of the operation.

A significant portion of postoperative patients underwent both total endoprosthetics of the hip joint (TEHJ) and knee joint (TEKJ) (p = 0.03), as shown in Table 2.

Table 2.

Type of operation and location according to patient questionnaire data

Type of operation	Before surgery (%)	Before surgery (people)	After surgery (%) After surgery (people)	P-value	Before surgery (people)
TEHJ	27,78%	43,4 ≈ **43**	35,76%	47,9 ≈ **48**	0,12
TAKJ	58,34%	91,0 ≈ **91**	55,23%	74,0 ≈ **74**	0,57
Both operations	2,78%	4,3 ≈ **4**	9,01%	12,1 ≈ **12**	**0,03**
None	11,11%	17,3 ≈ **17**	—	—	—

A significant difference is observed only in the "Both Operations" category (P = 0.03), indicating a statistically significant increase in the number of such patients after surgery.

Operation site

Location Before the operation (%) Before the operation (people)	After surgery (%) After surgery (people)	P-value	Location Before the operation (%) Before the operation (people)	After surgery (%) After surgery (people)	P-value
Hospital	47,57%	74,2 ≈ **74**	81,29%	109,9 ≈ **110**	**<0,001**
Hospital surgical center	10,68%	16,6 ≈ **17**	7,02%	9,4 ≈ **9**	0,23
Independent surgical center	8,74%	13,6 ≈ **14**	11,43%	15,3 ≈ **15**	0,45
Not sure	33,01%	51,5 ≈ **52**	—	—	**<0,001**

A significant difference is observed in the "Hospital" and "Uncertain" categories, which may indicate that after surgery, patients became better informed about the location of their procedure.

***Note:** statistically significant differences were identified for obese individuals (P<0.05).*

At the same time, 33.0% of patients did not know in which specific institution they would be interviewed before the surgery (p <0.001).

90.4% of preoperative patients noted that they were given sufficient time for questions, which is significantly lower than 98.5% of postoperative patients who stated the same (p = 0.01). Table 3 presents a breakdown of risk awareness before and after surgery.

Table 3.

Percentage of patients who indicated that they knew about the risks (before surgery) and discussed them (after surgery)

Risk Before surgery (%) Before surgery (people)	After surgery (%) After (people)	P-value Significance	Risk Before surgery (%) Before surgery (people)	After surgery (%) After (people)	P-value Significance	Risk Before surgery (%) Before surgery
Infection	82,57%	129	81,27%	109	0,76	—
Instability (dislocation)	33,94%	53	29,68%	40	0,40	—
Fracture of bone during or after surgery	33,94%	53	27,09%	36	0,17	—
Loss of limb	22,02%	34	14,70%	20	0,07	—
Deadly outcome	33,03%	52	21,33%	29	0,12	—
Weakening of implant fixation	34,87%	54	26,22%	35	0,08	—
Prolonged pain	50,46%	79	44,09%	59	0,24	—
Pneumonia	23,85%	37	14,70%	20	**0,02**	✓
Thrombus formation	65,14%	102	64,84%	87	0,95	—
Extended hospitalization	41,28%	64	22,47%	30	**<0,001**	✓
Blood transfusion	26,61%	41	31,41%	42	0,34	—

Note: *statistically significant differences were identified for obese individuals (P<0.05).*

The awareness of joint total endoprosthetics (JT) risks was higher among patients before surgery (40.7%), compared to patients after surgery (34.4%), which is a statistically significant difference (p <0.0001). The most pronounced differences were observed for two points: prolonged hospitalization and pneumonia. Thus, 41.3% of patients before surgery (64 people) indicated prolonged hospitalization as a possible risk, while only 22.5% of postoperative patients (30 people) mentioned this risk (p <0.001). Similarly, 23.9% of patients before surgery (37 people) mentioned the risk of pneumonia, while only 14.7% (20 people) indicated it after surgery, which also proved to be statistically significant (p = 0.02).

Other risks, such as infection (before - 82.6%, after - 81.3%), instability/dislocation (33.9% and 29.7%), bone fracture (33.9% and 27.1%), limb loss (22.0% and 14.7%), fatal outcome (33.0% and 21.3%), weak implant fixation (34.9% and 26.2%), chronic pain (50.5% and 44.1%), and thrombus formation (65.1% and 64.8%), were also more frequently indicated by preoperative patients, however, these differences did not reach statistical significance (p>0.07). Interestingly, the risk of blood transfusion was more frequently mentioned after surgery (31.4%), than before surgery (26.6%), but this difference was also not statistically significant (p = 0.34).

Table 4 describes the expected and actual parameters: hospitalization duration after TEJ, recovery time, physiotherapy, pain level, and activity.

Table 4.

Comparison of patient expectations before surgery and actual experience after surgery for the duration of hospitalization, recovery, physiotherapy, pain level, and activity

Indicator Before surgery (%) After surgery (%) P-value	Indicator Before surgery (%) After surgery (%) P-value	Indicator Before surgery (%) After surgery (%) P-value	Indicator Before surgery (%) After surgery (%) P-value
Hospitalization	Hospitalization	Hospitalization	Hospitalization
Less than 8 hours	30,10	19,89	0,05
8-12 hours	11,65	7,41	0,18
1 day	29,12	28,79	0,94
2 days	14,56	26,71	**<0,001**
1 week	6,80	12,17	0,13
Over 1 week	4,85	5,04	0,94
Restoration			
4-6 weeks	24,27	17,38	0,12
6-12 weeks	33,98	25,00	0,07
3-6 months	29,18	32,32	0,54
6-12 months	10,68	17,68	0,09
Over 1 year	1,94	7,62	**0,04**
Physiotherapy			
Less than 2 weeks	0,96	5,01	0,07
2-4 weeks	11,54	16,93	0,19
4-6 weeks	31,73	16,30	**0,006**
6-8 weeks	34,62	24,14	**0,04**
Over 2 months	21,15	37,62	**0,02**
Pain level			
Lack of pain	51,92	8,45	**<0,001**
Slight periodic pain	19,23	38,67	**0,0002**
Periodic pain during activity	27,88	40,18	**0,02**
Inability to move due to pain	0,96	12,69	**0,0004**
Expected activity level			
I'll be able to return to all previous activities	52,88	40,42	**0,03**
Minor restrictions expected	31,73	44,07	**0,03**
Significant restrictions are expected	15,38	15,50	0,97

Note: *statistically significant differences were identified for obese individuals (P<0.05).*

Differences in expectations for hospitalization duration: for example, 30.1% of preoperative patients believed they would stay in the hospital for less than 8 hours, while in reality, 26.7% of postoperative patients stayed in the hospital for 2 days. These differences were statistically significant ($p = 0.05$ and $p < 0.001$, respectively), indicating a low level of patient awareness regarding the standard duration of postoperative stay in the hospital.

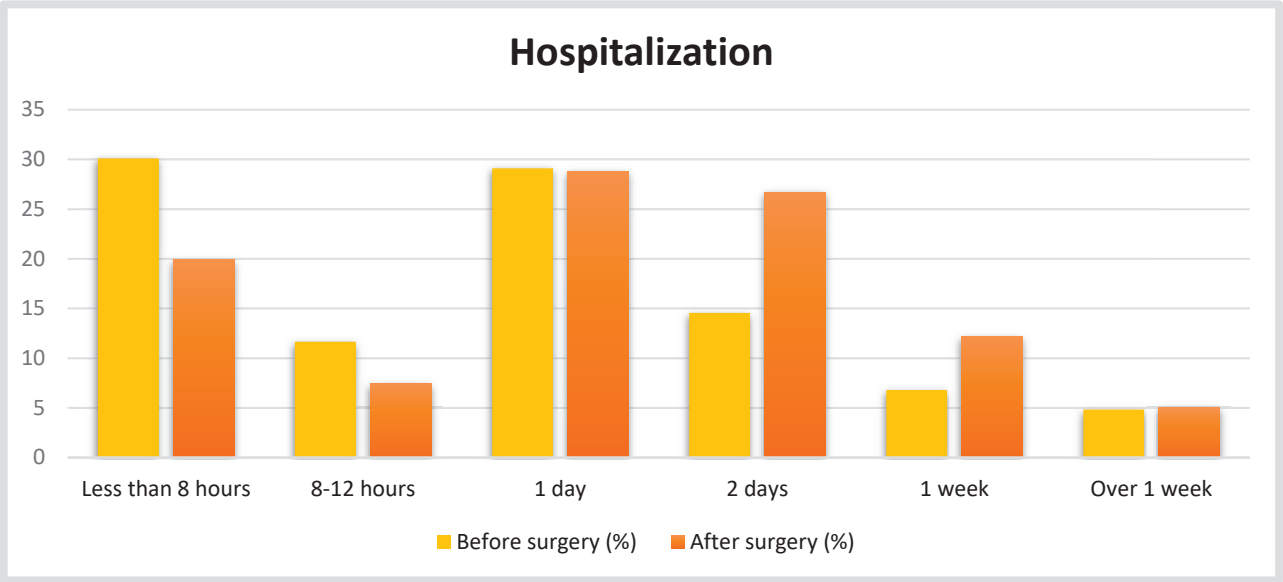

Fig. 1. Comparison of expectations and actual experience based on hospitalization duration

Regarding expected recovery, 87.4% of patients expected recovery within 3-6 months before surgery, however, only 74.7% confirmed this recovery period after surgery. Moreover, 7.6% of postoperative patients indicated that they needed 1 year for complete recovery, while only 1.9% of preoperative patients expected such a duration ($p = 0.04$). These data indicate the need to more realistically inform patients about the duration of the rehabilitation period.

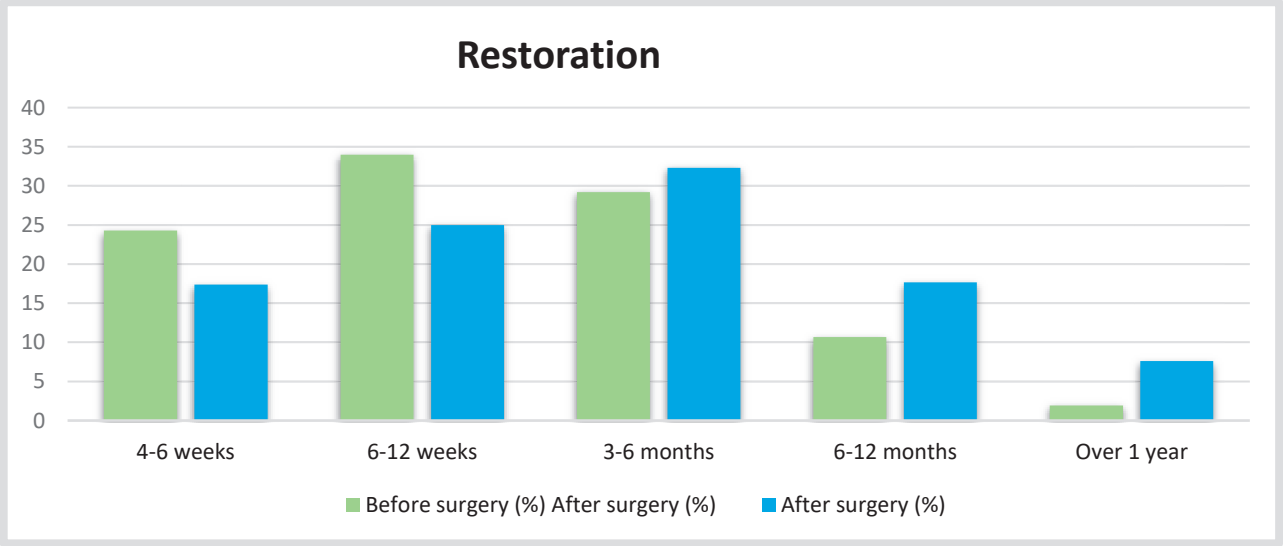

Fig. 2. Comparison of expectations and actual experience for recovery duration

Differences were also revealed regarding physiotherapy. Before the operation, 31.7% of patients expected a course of LFK lasting 4-6 weeks, and 34.6% - 6-8 weeks. However, in fact, only 16.3% of postoperative patients underwent a course of 4-6 weeks ($p = 0.006$), and 24.1% - 6-8 weeks ($p = 0.04$). In addition, 37.62% of patients practiced physical therapy for more than 2 months after surgery, while only 21.2% expected such duration before surgery ($p = 0.02$). This indicates a significant misunderstanding among patients regarding the scope of necessary rehabilitation and emphasizes the importance of early counseling on this issue.

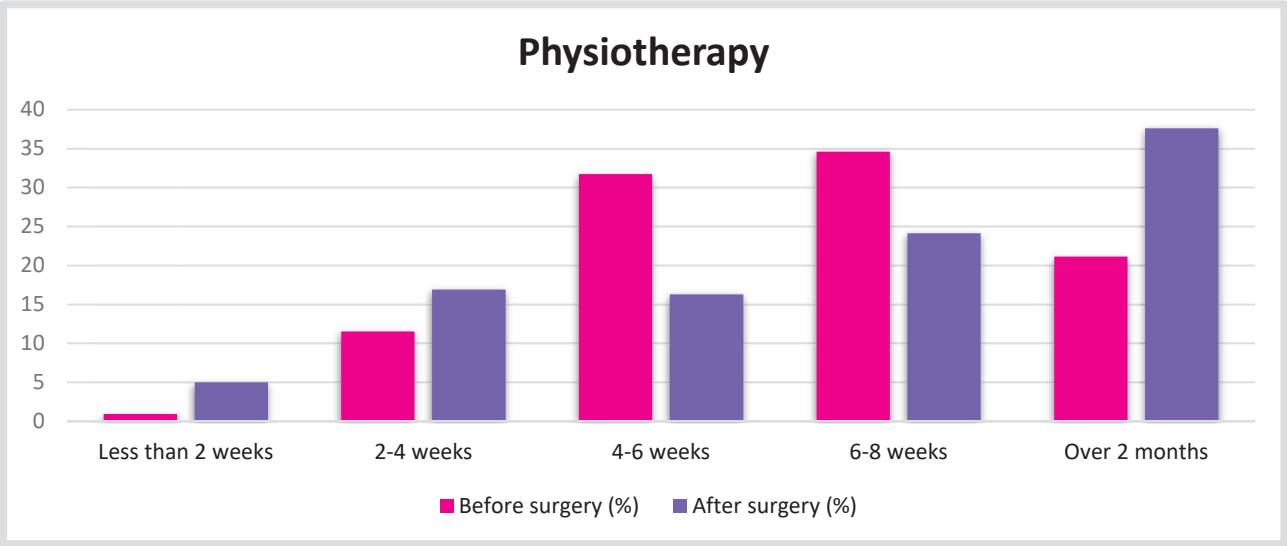

Fig. 3. Comparison of expectations and actual experience for physiotherapy duration

Expectations for pain levels differed significantly between groups. More than half of the patients before surgery (51.4%) expected that there would be no pain after TES, however, only 8.5% of postoperative patients did not actually experience pain sensations ($p < 0.001$). In addition, postoperative patients significantly more often noted mild periodic pain ($p = 0.02$), pain during certain activity ($p = 0.02$), and even inability to move due to pain ($p = 0.0004$). The discrepancy in the last indicator was especially pronounced: less than 1% of patients before surgery expected such a degree of pain, but 12.69% encountered it after surgery.

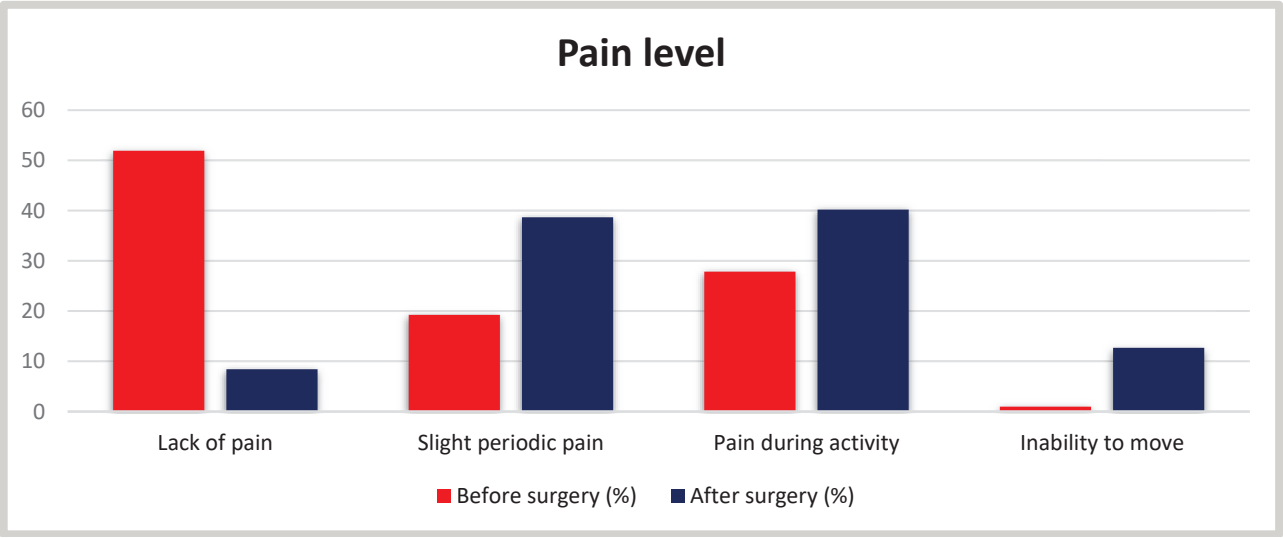

Fig. 4. Comparison of expectations and actual experience by duration of pain level

Expectations for activity levels were similar to those for pain. Before surgery, 52.9% of patients hoped to restore full activity, however, only 40.4% ($p = 0.03$) were achieved after surgery. At the same time, 44.1% of postoperative patients reported slight limitations in activity, while only 31.2% ($p = 0.03$) expected them before surgery. No significant differences were found in the expectations of significant activity limitations between the groups, however, overall, the data indicate the need to more realistically inform patients about the functional outcomes of surgical intervention.

These results emphasize the importance of preoperative counseling, focusing on real recovery times, possible pain levels, and physiotherapy duration to reduce the gap between expected and actual treatment outcomes.

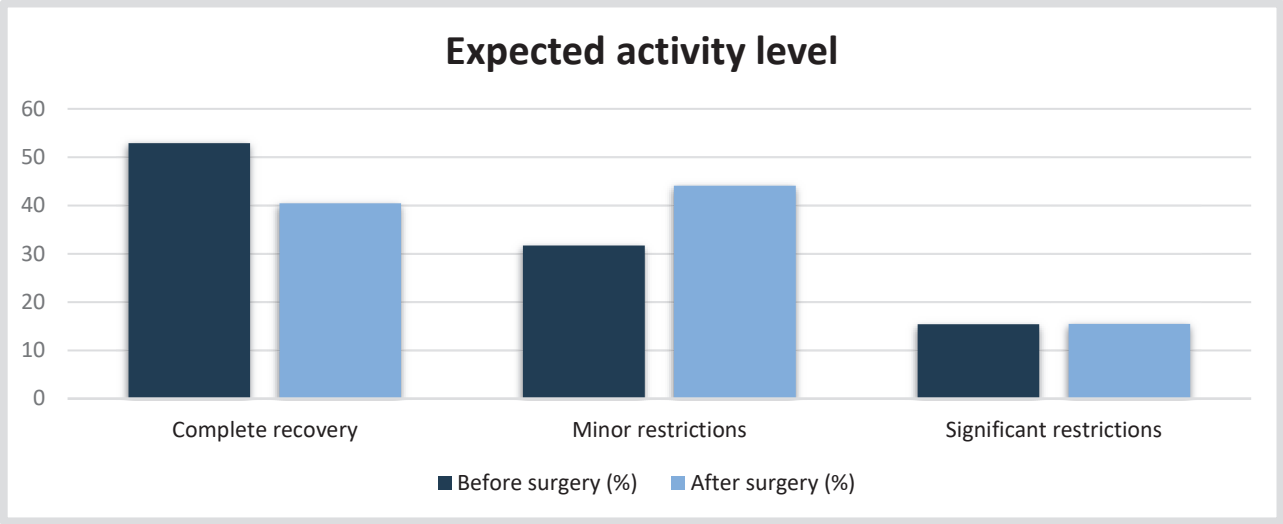

Fig. 5. Comparing expectations and actual experience by duration to activity level

Before the operation, 63% of patients (approximately 98 out of 156) expressed a willingness to wait no more than 10 weeks for the required total joint endoprosthetics, which emphasizes a high motivation to receive surgical care in a short time. At the same time, 91.3% of preoperative patients (about 142 people) noted that they were given sufficient time to ask questions to the doctor. After surgery, this indicator significantly increased: 97.4% of postoperative patients (approximately 131 out of 134) confirmed that they were indeed given the opportunity to ask all their questions of interest ($p = 0.009$), which indicates an improvement in the perception of communication after the intervention. Moreover, 99.3% of postoperative patients (133 out of 134) indicated that they were given sufficient time for personal communication with the surgeon, which could be a key factor in increasing their satisfaction with treatment outcomes.

Regarding rehabilitation, 53.2% of patients after surgery (approximately 71 people) expressed a desire to undergo additional physiotherapy for 4 or more weeks in addition to the basic program. These data confirm that many patients recognize the need for longer and individualized rehabilitation after TES than initially expected.

However, the level of organizational support after surgery remains insufficient: only 53.4% of postoperative patients (about 72 people) indicated that they were scheduled for long-term monitoring. This indicates the need to improve the follow-up monitoring system, including planning visits and providing reminders to increase patient commitment and timely identify possible complications in the postoperative period.

By analyzing the expectations and experiences of patients undergoing and having already undergone total endoprosthetics of joints (TES), this study was aimed at identifying gaps in patient satisfaction and areas requiring improved clinical care for hip and knee joint surgeries. The obtained results revealed significant discrepancies between patients' expectations and their postoperative experience, especially in aspects of risk awareness, postoperative pain level, physical activity recovery, and the duration of necessary physiotherapy. These discrepancies emphasize the need for further research dedicated to studying patients' expectations in the preoperative period and improving counseling methods to achieve greater correspondence between expectations and real treatment outcomes.

Patients' awareness of the risks before and after surgery was insufficient. According to the survey, only 40.7% of patients demonstrated a general understanding of the risks before surgery, while among patients who had already undergone TES, this indicator decreased to 34.4% ($p < 0.0001$). The most significant differences were related to prolonged hospitalization and pneumonia. Thus, 41.3% of preoperative patients (156 out of 64) considered prolonged hospitalization a potential risk, while only 22.5% (13 out of 30) mentioned it after surgery ($p < 0.001$). Similarly, the risk of pneumonia was 23.9% before surgery (37 people) versus 14.7% after surgery (20 people) ($p = 0.02$).

Although differences in other points (including infection, instability, bone fracture, limb loss, fatal outcome, weak implant fixation, chronic pain, and thrombus formation) did not reach statistical significance ($p > 0.07$), they were also more frequently mentioned by preoperative patients, which may indicate a more active perception of risks before surgical intervention. For example, infection was mentioned by 82.6% before surgery (129 people) and 81.3% after surgery (109 people), chronic pain by 50.5% before surgery (79 people) versus 44.1% after surgery (59 people), and thrombus formation by 65.1% before surgery (102 people) and 64.8% after surgery (87 people).

Interestingly, the only risk most frequently mentioned after surgery was blood transfusion: it was indicated by 31.4% of postoperative patients (42 people) versus 26.6% before surgery (41 people), however, this difference was not statistically significant ($p = 0.34$).

Such a general insufficient level of awareness can be due to both insufficient communication by healthcare professionals and the limited ability of elderly patients to absorb medical information under stressful conditions. This aligns with the findings of Kearney et al., who showed that participation in preoperative training classes improves patient awareness and experience.

Pain after surgery remains an important problem. According to the results, 51.9% of patients expected complete absence of pain before surgery, but only 8.45% actually did not experience it after the intervention. At the same time, 0.96% expected to be unable to move due to pain, while in reality, 12.69% encountered this. A similar discrepancy also manifested itself in the area of physical activity: 31.7% of patients expected to fully restore their activity level, but after surgery, only 40.4% confirmed this. These differences are confirmed by the findings of Arpey et al., according to which patients' expectations for functional recovery are twice as high as actual outcomes. This can explain the high level of dissatisfaction, reaching up to 20%.

Regarding physiotherapy, most patients underestimated the required rehabilitation duration. Although only 18.3% expected treatment to take more than 2 months, after the operation, 44.4% reported more than 6 weeks of LFK, and 26.1% expressed a desire to continue therapy for at least another 6 weeks. Overall, 53.2% of patients acknowledged the need to continue training. These data confirm the importance of early informing patients about the duration of recovery and the key role of physiotherapy. Preoperative classes for physical therapy, as demonstrated by Jones et al., can not only improve functional outcomes and reduce hospitalization but also reduce treatment costs by an average of $900. Consequently, informing and individualizing the rehabilitation program should be a priority even at the preoperative stage.

Postoperative visits were also underestimated. Only 52.1% of respondents reported that they were scheduled for long-term observation, indicating a low level of commitment and the possibility of missing a moment to prevent complications. This is confirmed by the data of Clohisy et al., according to which only 61% of patients come to the clinic after one year, and only 36% - two years after TES. This emphasizes the need to improve the reminder system and visit planning to enhance patient engagement and the quality of subsequent monitoring.

Finally, it is necessary to note the limitations of the study: the data were collected in one academic center, and the questionnaires before and after the operation were not compared for specific patients, which excludes individual comparison of changes. Moreover, the study is descriptive in nature, and the selection of participants was based on convenience, which limits the generalizability of the results.

Conclusion. Patients undergoing total joint endoprosthetics (TES) have diverse opinions and expectations regarding the results of the operation. However, often, preoperative expectations do not coincide with the post-operative reality. This discrepancy is especially noticeable in aspects such as the expected level of pain after surgery, physiotherapy timing, and awareness of surgical risks.

Furthermore, the long-term planning of subsequent observation in arthroplasty clinics remains insufficiently understood for patients.

The obtained results indicate the need for more thorough and comprehensive communication between the physician and the patient during the perioperative period. Introducing changes aimed at aligning patients' expectations with real postoperative outcomes even before surgery can significantly increase the overall level of patient satisfaction and their experience in interacting with the healthcare system.

REFERENCES

1. Ahmad A., Rehman M.A., Nizamuddin S., Malik S.A. Patient satisfaction after total knee replacement: an institutional study // *Cureus.* 2021. Vol. 13, № 4. P. e14433.

2. Arpey N.C., Gaglioti A.H., Rosenbaum M.E. How socioeconomic status affects patient perceptions of health care: a qualitative study // *Journal of Primary Care & Community Health.* 2017. Vol. 8, № 3. P. 169–175.

3. Baker P.N., van der Meulen J.H., Lewsey J., Gregg P.J. The role of pain and function in determining patient satisfaction after total knee replacement // *Journal of Bone and Joint Surgery British Volume.* 2007. Vol. 89, № 7. P. 893–900.

4. Bourne R.B., Chesworth B.M., Davis A.M., Mahomed N.N., Charron K.D. Patient satisfaction after total knee arthroplasty: who is satisfied and who is not? // *Clinical Orthopaedics and Related Research.* 2010. Vol. 468, № 1. P. 57–63.

5. Clohisy J.C., Beaulé P.E., O'Malley A., Safran M.R., Schoenecker P. Hip disease in the young adult: current concepts of etiology and surgical treatment *// Journal of Bone and Joint Surgery American Volume*. 2008. Vol. 90, № 10. P. 2267–2281.

6. Ethgen O., Bruyère O., Richy F., Dardennes C., Reginster J.-Y. Health-related quality of life in total hip and total knee arthroplasty *// The Journal of Bone and Joint Surgery. American Volume.* 2004. Vol. 86, № 5. P. 963–974.

7. Gunaratne R., Pratt D.N., Banda J., Fick D.P., Khan R.J.K., Robertson B.W. Patient dissatisfaction following total knee arthroplasty: a systematic review of the literature *// Journal of Arthroplasty.* 2017. Vol. 32, № 12. P. 3854–3860.

8. Haanstra T.M., van den Berg T., Ostelo R.W., Poolman R.W., Jansma I.P., Cuijpers P., de Vet H.C. Do patient expectations influence treatment outcomes in total knee and total hip arthroplasty? A systematic review // *Health Expectations.* 2012. Vol. 18, № 5. P. 1507–1524.

9. Jones C.A., Beaupre L.A., Johnston D.W., Suarez-Almazor M.E. Total joint arthroplasties: current concepts of patient outcomes after surgery *// Rheumatic Disease Clinics of North America.* 2005. Vol. 33, № 1. P. 71–86.

10. Kearney R.S., Parsons N., Costa M.L. Preoperative education for hip or knee replacement *// Cochrane Database of Systematic Reviews.* 2016. Issue 5. Art. No.: CD003526.

11. Learmonth I.D., Young C., Rorabeck C. The operation of the century: total hip replacement *// Lancet.* 2007. Vol. 370, № 9597. P. 1508–1519. DOI: https://doi.org/10.1016/S0140-6736(07)60457-7

12. Scott C.E., Bugler K.E., Clement N.D., MacDonald D., Howie C.R., Biant L.C. Patient expectations of arthroplasty of the hip and knee *// Journal of Bone and Joint Surgery British Volume.* 2012. Vol. 94, № 7. P. 974–981.

13. Tilbury C., Haanstra T.M., Leichtenberg C.S., Verdegaal S.H., Ostelo R.W., de Vet H.C., Vliet Vlieland T.P. Unfulfilled expectations after total hip and knee arthroplasty surgery: a systematic review *// Bone & Joint Journal.* 2016. Vol. 98-B, № 6. P. 703–709.