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Does physician continuity matter? Impact on satisfaction and functional outcomes after total knee arthroplasty

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Abstract

Despite high success rates of total knee arthroplasty (TKA), up to 20% of patients report dissatisfaction. Physician continuity—receiving indication, surgery, and follow-up from the same physician—may improve communication, trust, adherence, and satisfaction, yet its effect has rarely been investigated. This retrospective study included 237 patients who underwent primary TKA between January 2020 and March 2024. Patients were categorized into four groups based on physician continuity: Group 1 (n = 68), different physicians at all stages; Group 2 (n = 60), same physician for surgery and follow-up; Group 3 (n = 56), same physician for indication and surgery; Group 4 (n = 53), same physician across all stages. Outcomes included WOMAC and Forgotten Joint Score-12 (FJS-12), EQ-5D-3L and EQ-VAS, and an eight-item satisfaction questionnaire (Cronbach's $\alpha = 0.83$). Baseline demographic and radiological variables were similar between groups (all $p > 0.05$). Significant differences were found in postoperative WOMAC, ΔWOMAC, FJS-12, EQ-5D-3L, EQ-VAS, and satisfaction scores (all $p < 0.001$). Group 4 (full continuity) achieved the best results, followed by Group 3 (partial continuity), whereas Group 1 showed the lowest outcomes. In multivariable analysis, full physician continuity remained independently associated with superior functional and satisfaction outcomes after adjustment for baseline and clinical variables. Minor complications occurred in 8.4% of patients, with no significant differences between groups ($p = 0.91$). Physician continuity throughout the TKA pathway is associated with better functional outcomes, higher satisfaction, and improved quality of life. Even partial continuity provides measurable benefits and minimizing physician changes may enhance postoperative recovery.

Keywords: Total knee arthroplasty, physician continuity, patient satisfaction, functional outcomes, quality of life

Introduction

Total knee arthroplasty (TKA) is an effective surgical procedure performed in cases of advanced joint degeneration, osteoarthritis, or traumatic damage, aiming to relieve pain and improve functional capacity [1,2]. Owing to advances in surgical techniques, prosthesis design, and perioperative management, clinical outcomes following TKA have substantially improved in recent decades [3]. However, despite the high rates of objective success, several studies have reported that 10–20% of patients remain dissatisfied with postoperative results [4-6]. More recent large-cohort analyses and registry-based studies confirm that dissatisfaction persists even in modern practice, although overall satisfaction rates may approach 85–90% [7-9].

Patient satisfaction is influenced not only by objective parameters such as pain relief or functional improvement but also by subjective factors, including the patient's personal experience throughout the surgical process, fulfillment of expectations, and trust in the healthcare service [10,11]. In particular, communication with the surgeon, adequacy of preoperative information, quality of postoperative follow-up, and continuity of care are key determinants of patient satisfaction. Lau et al. further emphasized the importance of surgeon-related factors by

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demonstrating that surgical experience and procedure volume can directly affect functional outcomes [12].

Beyond technical competence, continuity of care—maintaining treatment under the same physician throughout the perioperative process—may strengthen trust, ensure consistent information transfer, and improve communication quality, thereby influencing patient satisfaction. Indeed, existing literature has shown that patient satisfaction following TKA depends not only on surgical success but also on the relationship of trust between patient and physician, proper management of patient expectations, and continuous communication throughout the treatment process [13].

In this context, whether the physicians involved in different stages of the TKA process—indication, surgery, and postoperative follow-up—are the same or different may have a significant impact on patient satisfaction and functional outcomes. Nevertheless, there is a scarcity of studies directly addressing this specific factor.

To the best of our knowledge, no previous study has comprehensively evaluated the effect of physician continuity on postoperative satisfaction and outcomes following TKA. The aim of this study was to investigate whether physician continuity across the indication, surgical, and follow-up stages influences postoperative satisfaction and functional outcomes in patients undergoing total knee arthroplasty. We hypothesized that maintaining physician continuity throughout the entire treatment process would lead to higher satisfaction levels and better functional results compared with cases managed by different physicians at each stage.

Material and Methods

Study Design

This study was designed as a retrospective, observational clinical investigation. It was conducted at a tertiary orthopedic and traumatology center by reviewing the medical records of patients who underwent TKA between 2020 and 2024. The study was approved by the institutional review board of the University of Health Sciences Baltalimani Bone Diseases Training and Research Hospital and conducted in accordance with the principles of the Declaration of Helsinki (Approval No: 28/191, Date: October 28, 2024).

Initially, 1000 patients who underwent TKA between January 2020 and March 2024 were retrospectively screened. Exclusion criteria included: patients younger than 50 years (n = 212), those with incomplete or missing follow-up data (n = 295), revision TKA cases (n = 52), bilateral TKA (n = 6), previous surgery on the same limb (n = 138), major postoperative complications such as periprosthetic infection, reoperation, or implant loosening (n = 37), and patients with cognitive impairment or psychiatric conditions preventing effective communication (n = 19).

A total of 763 patients were excluded for meeting one or more of these criteria, leaving 237 patients eligible for final analysis (Figure 1).

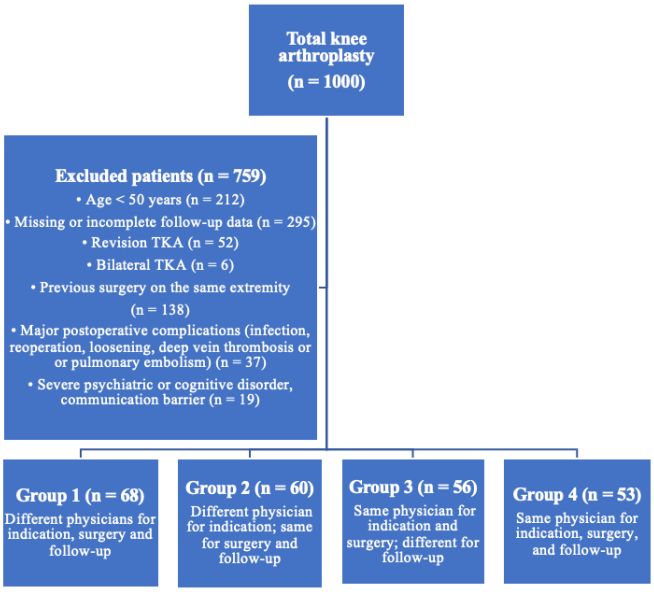

Figure 1. Study flowchart

Patients were divided into four groups according to physician continuity during the treatment process, based on hospital records indicating the physicians responsible for indication, surgery, and follow-up:

Group 1 (n = 68): Different physicians performed indication, surgery, and postoperative follow-up.

Group 2 (n = 60): Indication by one physician, but surgery and follow-up by the same physician.

Group 3 (n = 56): Indication and surgery by the same physician, follow-up by a different physician.

Group 4 (n = 53): Indication, surgery, and postoperative follow-up performed by the same physician.

In our institution, surgical indication for total knee arthroplasty is determined during outpatient evaluation by attending orthopedic specialists according to standardized clinical and radiological criteria. Due to the structure of our tertiary referral center, scheduling logistics, and workload distribution, the operating surgeon is not always the same physician who initially established the indication. However, all surgical indications were reviewed and confirmed by the operating surgeon prior to the procedure to ensure consistency with institutional treatment protocols.

Data Collection and Outcome Parameters

Patient data were obtained by the investigators using the hospital's digital medical records and the radiology archiving system (EXTREME PACS). The following variables were recorded: demographic characteristics (age, sex, body mass index (BMI), affected side, smoking status), clinical features

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(American Society of Anesthesiologists (ASA) Physical Status Classification [14], preoperative Kellgren–Lawrence (K–L) grade [15], pre- and postoperative hip–knee–ankle (HKA) angle [16], pre- and postoperative tibial slope angles [17] and follow-up duration). Surgical date, operating surgeon, and follow-up physician were also retrieved. Postoperative complications and follow-up visit details were systematically reviewed and documented.

Functional and Clinical Assessment

Functional outcomes were evaluated using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) and the Forgotten Joint Score-12 (FJS-12)**,** both of which have previously been validated and shown to be reliable in Turkish [18-21]. The WOMAC includes subscales for pain, stiffness, and physical function. WOMAC scores were converted to a 0–100 scale and reverse-coded for interpretability, with higher scores indicating better function. The FJS-12 is a 12-item questionnaire assessing how frequently the patient "forgets" the artificial joint during daily activities, where higher scores represent better outcomes.

Quality of life was assessed using the EQ-5D-3L and EQ-VAS instruments [22]. Developed by the EuroQol Group and adapted into more than 150 languages including Turkish, the EQ-5D-3L evaluates five dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. The EQ-VAS records the patient's self-rated health on a visual analog scale ranging from 0 (worst imaginable health) to 100 (best imaginable health).

To assess patient–physician interaction and process-related satisfaction, a custom-designed satisfaction questionnaire was specifically developed for this study. The survey consists of eight questions rated on a 5-point Likert scale ranging from "never" (1) to "always" (5). Seven items evaluated general care satisfaction, including adequacy of information provided ("I felt sufficiently informed by my physician"), accessibility of the physician ("I could easily reach my physician throughout the process"), confidence in the physician ("The physician's attitude inspired confidence"), consideration of pre- and postoperative concerns ("The physician took my concerns into account before and after surgery"), perception of consistent follow-up ("I felt I was medically monitored regularly"), clarity of the treatment plan ("The physician explained the treatment plan clearly and understandably"), and the contribution of communication to treatment success ("My communication with the physician positively affected my treatment process"). One item specifically assessed perceived continuity confidence ("Being treated by the same physician throughout the process gave me confidence"). Because the study groups were defined according to physician continuity, this item was analyzed separately to avoid potential circularity in the composite satisfaction comparison. For each patient, a composite satisfaction score was calculated by averaging the Likert-scale responses across all eight items, resulting in a total score ranging from 1 to 5, with higher scores indicating greater satisfaction. The internal consistency of this custom satisfaction scale was evaluated using Cronbach's alpha, yielding a value of $\alpha = 0.83$, indicating high reliability. The English version of the questionnaire has been provided as Supplementary File 1.

Preoperative WOMAC scores were obtained during the final preoperative outpatient visit. Postoperative WOMAC, FJS-12, EQ-5D-3L, EQ-VAS, and satisfaction questionnaires were administered at the final follow-up visit, at least 12 months postoperatively (mean ≈ 24 months). All questionnaires were administered via structured telephone interviews conducted by a trained orthopedic resident. Each patient was contacted at least twice, and interviews lasted approximately 15 minutes on average, ensuring reliable and complete data collection. The interviewer was blinded to physician continuity group allocation at the time of data collection to minimize potential measurement bias.

Complications were classified as major or minor based on clinical relevance. Major complications included periprosthetic joint infection, implant loosening or fracture, reoperation, dislocation, and systemic complications such as deep vein thrombosis or pulmonary embolism. Because these events could directly influence functional outcomes and patient satisfaction, such cases were excluded from analysis.

Minor complications included superficial wound infection, delayed wound healing, transient peroneal nerve irritation, mild joint stiffness, or hematoma requiring aspiration (Table 3). These were managed conservatively or with minor interventions and did not require reoperation or prolonged hospitalization.

Surgical Technique and Postoperative Follow-up

All procedures were performed using the Superadius Total Knee Arthroplasty System (Stryker Trauson, Kalamazoo, MI, USA). A standard medial parapatellar approach was used in all cases, and a cruciate-retaining prosthesis was implanted. Tibial and femoral cuts were made according to the mechanical axis, and proper implant alignment was confirmed before final cementation. Wound closure was performed following the standard institutional protocol.

Surgeons performing at least 25 TKAs per year were defined as "experienced surgeons" [12] and only cases operated by such surgeons were included.

Postoperative management followed a standardized institutional protocol. All patients received prophylaxis for deep vein thrombosis (DVT) with subcutaneous enoxaparin sodium for the first two weeks (dose adjusted according to body weight and cardiology consultation), followed by low-dose acetylsalicylic acid for one month. Clinical follow-up visits were scheduled at postoperative weeks 2 and 6, and at months 3, 6, and 12. At each visit, range of motion, pain level, walking ability, and radiographic parameters (implant position, mechanical axis, tibial slope) were evaluated, with laboratory or advanced imaging studies performed when necessary.

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Statistical Analysis

All statistical analyses were performed using IBM SPSS Statistics for Windows, Version 26.0 (IBM Corp., Armonk, NY, USA). The normality of continuous variables was assessed using the Shapiro–Wilk test. Normally distributed variables were presented as mean ± standard deviation (SD), and non-normally distributed variables as median (minimum–maximum).

Group comparisons were performed using one-way analysis of variance (ANOVA) for normally distributed data, followed by Tukey post-hoc tests for pairwise comparisons. For non-normally distributed data, the Kruskal–Wallis test was applied, followed by Dunn–Bonferroni correction for multiple comparisons. Categorical variables were compared using the chi-square test.

Functional outcomes (pre- and postoperative WOMAC, ΔWOMAC, FJS-12), quality of life measures (EQ-5D-3L, EQ-VAS), and patient satisfaction scores were compared among the four groups. Statistical significance was set at $p < 0.05$.

To further address potential confounding, multivariable linear regression analyses were performed. Postoperative WOMAC and general satisfaction score (7 items) were used as dependent variables. Physician continuity group was entered as a categorical independent variable (reference: Group 1). The models were adjusted for age, gender, BMI, ASA score, smoking status, and preoperative WOMAC score. Unstandardized regression coefficients (β), 95% confidence intervals (CI), and adjusted R^2 values were reported.

Results

A total of 237 patients were included in the study (Group 1 = 68, Group 2 = 60, Group 3 = 56, Group 4 = 53). The four groups were statistically comparable in terms of age, sex distribution, BMI, operated side, ASA score, smoking status, preoperative K-L grade, preoperative WOMAC score, and mean follow-up duration (all $p > 0.05$).

Additionally, no significant differences were found among the groups regarding alignment-related parameters that could influence outcomes. Preoperative and postoperative HKA angles and tibial slope values were similar across all groups ($p > 0.05$). These findings indicate that the study groups were demographically and radiologically homogeneous (Table 1).

Table 1. Demographic, clinical, and radiographic characteristics of the study groups

	Group 1 (n = 68)	Group 2 (n = 60)	Group 3 (n = 56)	Group 4 (n = 53)	P-value
Age (years, mean ± SD)	66.8 ± 7.5	67.2 ± 7.0	66.5 ± 6.8	66.7 ± 7.2	0.84
Gender (F/M)	45/23	38/22	35/21	32/21	0.79
BMI (kg/m², mean ± SD)	29.4 ± 3.5	29.0 ± 3.7	29.3 ± 3.6	29.2 ± 3.8	0.91
Side (Right/Left)	36/32	34/26	30/26	29/24	0.87
ASA score (I/II/III/IV)	5/40/21/2	4/36/18/2	5/34/15/2	4/33/14/2	0.95
Smoker/non-smoker	18/50	16/44	17/39	15/38	0.94
Preop WOMAC score (mean ± SD)	42.5 ± 15.2	43.0 ± 14.8	42.8 ± 15.0	42.7 ± 15.1	0.99
Follow-up (years, mean ± SD)	2.0 ± 0.4	2.0 ± 0.5	2.0 ± 0.4	2.0 ± 0.5	0.99
Preop K-L grade (mean ± SD)	3.2 ± 0.6	3.1 ± 0.7	3.3 ± 0.5	3.2 ± 0.6	0.68
Preop HKA angle (°, mean ± SD)	174.5 ± 2.5	174.7 ± 2.8	174.6 ± 2.6	174.8 ± 2.7	0.93
Postop HKA angle (°, mean ± SD)	179.0 ± 2.0	178.8 ± 2.1	179.1 ± 2.2	179.0 ± 2.3	0.88
Preop tibial slope (°, mean ± SD)	7.2 ± 3.0	7.0 ± 3.2	7.1 ± 3.1	7.3 ± 3.0	0.92
Postop tibial slope (°, mean ± SD)	4.1 ± 2.5	4.0 ± 2.6	4.2 ± 2.4	4.1 ± 2.5	0.89

Values are expressed as mean ± SD or number of patients. BMI: body mass index; ASA: American Society of Anesthesiologists; WOMAC: Western Ontario and McMaster Universities Osteoarthritis Index; K–L: Kellgren–Lawrence; HKA: hip–knee–ankle. No significant intergroup differences were observed ($p > 0.05$)

The comparison of functional and clinical outcomes among the study groups is presented in Table 2, and the distribution of scores is illustrated in Figure 2. There were statistically significant differences among the four groups in postoperative WOMAC, FJS-12, EQ-5D-3L, EQ-VAS, and patient satisfaction scores (all $p < 0.001$). Overall, higher levels of physician continuity were associated with greater functional improvement, higher quality-of-life scores, and increased patient satisfaction.

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Table 2. Comparison of functional and satisfaction outcomes among the study groups

	Group 1 (n = 68)	Group 2 (n = 60)	Group 3 (n = 56)	Group 4 (n = 53)	P-value
Postop WOMAC	72.4 ± 8.1	78.6 ± 7.4	81.5 ± 6.9	84.8 ± 6.4	**< 0.001**
Δ WOMAC (Change)	25.3 ± 6.5	30.2 ± 6.1	33.1 ± 5.9	35.2 ± 5.4	**< 0.001**
FJS-12	61.2 ± 9.4	66.7 ± 8.5	74.3 ± 7.6	75.6 ± 7.2	**<0.001**
EQ-VAS	71.5 ± 8.7	75.8 ± 7.9	82.6 ± 7.1	81.9 ± 7.3	**< 0.001**
EQ-5D-3L	0.78 ± 0.07	0.81 ± 0.06	0.84 ± 0.05	0.86 ± 0.04	**< 0.001**
General satisfaction score (7 items)	3.5 ± 0.5	3.6 ± 0.5	3.8 ± 0.5	3.9 ± 0.5	**0.03**
Perceived continuity confidence (1 item)	2.5 ± 0.8	3 ± 0.8	3.7 ± 0.7	4.3 ± 0.6	**< 0.001**

Values are expressed as mean ± SD. WOMAC: Western Ontario and McMaster Universities Osteoarthritis Index; FJS-12: Forgotten Joint Score-12; EQ-VAS: EuroQol Visual Analogue Scale; EQ-5D-3L: EuroQol 5-Dimension 3-Level scale. P-values indicate overall group differences.

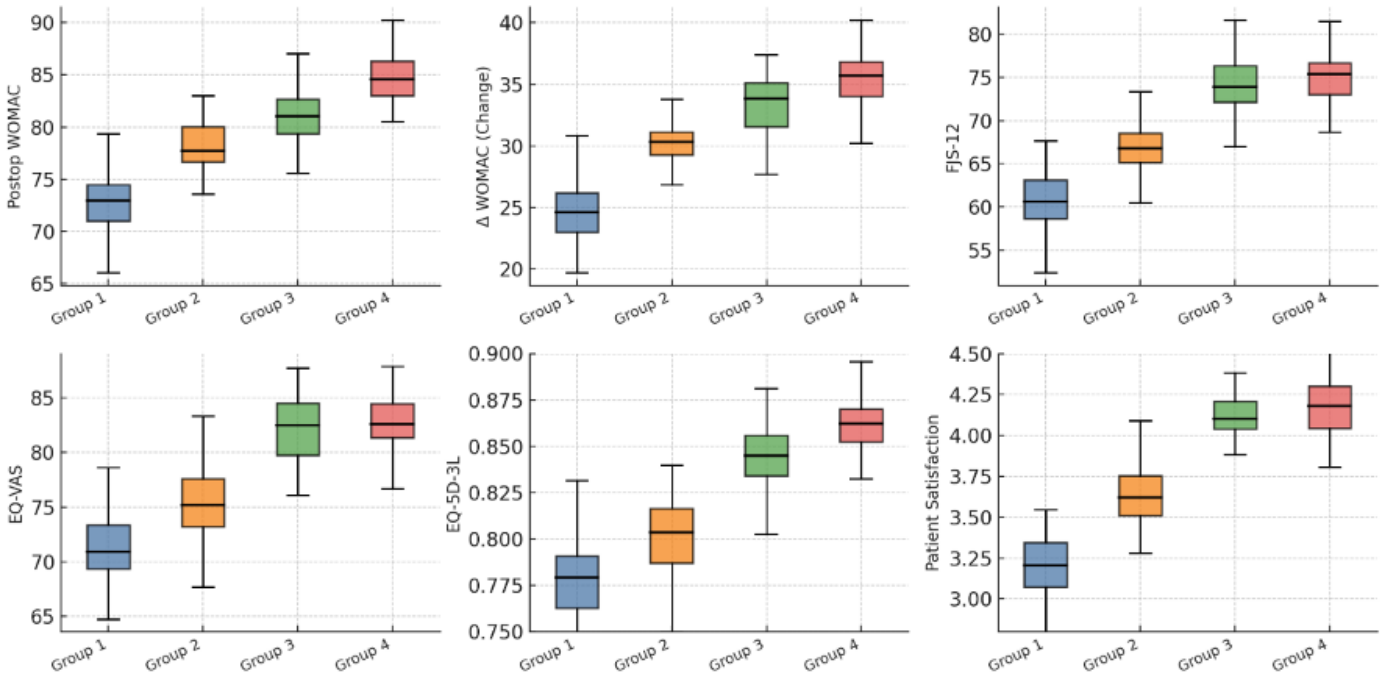

Figure 2. Comparison of postoperative functional outcomes (WOMAC, FJS-12, EQ-5D-3L, EQ-VAS) and patient satisfaction scores among physician continuity groups; Box plots showing postoperative WOMAC, FJS-12, EQ-5D-3L, EQ-VAS, and patient satisfaction scores across the four physician continuity groups; Higher scores were observed in groups with greater physician continuity ($p < 0.001$)

Post-hoc analyses revealed that Group 4 (same physician for indication, surgery, and follow-up) achieved the highest scores across all parameters, whereas Group 1 (different physicians throughout all stages) had the lowest scores.

Postoperative WOMAC scores were lowest in Group 1 (72.4 ± 8.1) and highest in Group 4 (84.8 ± 6.4) ($p < 0.001$). In post-hoc comparisons, Group 4 had significantly higher WOMAC scores than Groups 1 and 2 (both $p < 0.001$), and Group 3 also showed higher scores than Group 1 ($p = 0.002$). Similarly, the ΔWOMAC (change) scores followed the same trend, with Group 4 demonstrating significantly greater improvement than Groups 1 and 2 (both $p < 0.001$), and Group 3 showing higher change than Group 1 ($p = 0.003$).

Regarding FJS-12 scores, a marked advantage was observed in groups with surgical and follow-up continuity (global $p < 0.001$). Patients in Group 3 (74.3 ± 7.6) and Group 4 (75.6 ± 7.2) achieved significantly higher FJS-12 scores than those in Group 1 (both $p < 0.001$), while Group 4 also scored higher than Group 2 ($p = 0.01$).

EQ-VAS scores differed significantly among the groups ($p < 0.001$). The highest means were observed in Group 3 (82.6 ± 7.1)

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and Group 4 (81.9 ± 7.3), both of which had significantly better results than Groups 1 and 2 (all $p < 0.001$).

A similar trend was noted in EQ-5D-3L scores ($p < 0.001$). Group 4 (0.86 ± 0.04) and Group 3 (0.84 ± 0.05) reported the highest quality-of-life values. Group 4 scores were significantly higher than those of Groups 1 and 2 (both $p < 0.001$), and Group 3 also showed higher scores than Group 1 ($p = 0.004$).

The general satisfaction score (7 items) demonstrated a statistically significant overall group effect ($p = 0.03$). However, the magnitude of difference between groups was modest. Patients in Group 4 (3.9 ± 0.5) and Group 3 (3.8 ± 0.5) reported higher satisfaction levels compared to Groups 1 and 2. Perceived continuity confidence (single item) showed a more pronounced gradient across groups ($p < 0.001$). The highest scores were observed in Group 4 (4.3 ± 0.6), followed by Group 3 (3.7 ± 0.7). Notably, Group 3 demonstrated higher perceived continuity confidence than Group 2, suggesting that continuity between indication and surgery may play a particularly important role in shaping patient trust.

Multivariable linear regression analysis confirmed that Group 4 remained independently associated with higher postoperative WOMAC scores compared to Group 1 after adjustment for potential confounders (β = 6.0, 95% CI: 3.8–8.2, $p < 0.001$). In contrast, Groups 2 and 3 did not show statistically significant differences after adjustment (Table 3). For the general satisfaction score (7 items), only Group 4 demonstrated a modest but statistically significant independent association compared to Group 1 (β = 0.21, 95% CI: 0.01–0.41, $p = 0.04$) (Table 4).

Table 3. Multivariable linear regression analysis for postoperative WOMAC (Reference: Group 1)

Predictor	β (Unstandardized)	95% CI	P-value
Group 2 vs Group 1	1.2	-0.6 to 3.0	0.19
Group 3 vs Group 1	1.6	-0.3 to 3.5	0.10
Group 4 vs Group 1	6.0	3.8 to 8.2	< 0.001
Preoperative WOMAC	0.38	0.30 to 0.46	**< 0.001**
Age	-0.11	-0.21 to -0.01	**0.03**
Female gender	-1.85	-3.40 to -0.30	**0.02**
BMI	-0.09	-0.17 to -0.01	**0.03**
ASA score	-1.05	-2.15 to 0.05	0.06
Smoking	-0.55	-2.10 to 1.00	0.49

β values represent unstandardized regression coefficients; Group 1 was used as the reference category, CI: confidence interval.Adjusted $R^2 = 0.42$

Table 4. Multivariable linear regression analysis for postoperative general satisfaction score (Reference: Group 1)

Predictor	β (Unstandardized)	95% CI	P-value
Group 2 vs 1	0.05	-0.05 to 0.15	0.31
Group 3 vs 1	0.12	-0.02 to 0.26	0.09
Group 4 vs 1	0.21	0.01 to 0.41	0.04
Preoperative WOMAC	0.006	0.002 to 0.010	**0.003**
Age	-0.003	-0.007 to 0.001	0.11
Female gender	-0.14	-0.26 to -0.02	**0.02**
BMI	-0.005	-0.012 to 0.002	0.16
ASA score	-0.07	-0.15 to 0.01	0.08
Smoking	-0.03	-0.15 to 0.09	0.63

β values represent unstandardized regression coefficients. Group 1 was used as the reference category, CI: confidence interval.Adjusted $R^2 = 0.18$

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In summary, as physician continuity increased, functional recovery, quality of life, and patient satisfaction improved significantly. This upward trend is clearly illustrated in the box-plot graphs (Figure 2), which visually demonstrate the progressive improvement across groups.

Patients who developed major postoperative complications, as described in the methodology section, were excluded from the analysis. The overall rate of minor complications was 8.4%, with no statistically significant difference among the four groups (p = 0.91). The most common minor complications were superficial wound infection and mild joint stiffness, each occurring in 2.5% of patients. The distribution of complications by group is presented in Table 5.

Table 5. Comparison of minor complications among the study groups

Minor complication	Group 1 (n = 68)	Group 2 (n = 60)	Group 3 (n = 56)	Group 4 (n = 53)	P-value
Superficial wound infection	2 (2.9%)	1 (1.7%)	2 (3.6%)	1 (1.9%)	0.92
Wound healing delay	1 (1.4%)	2 (3.3%)	1 (1.8%)	1 (1.9%)	0.88
Transient nerve symptoms	1 (1.4%)	1 (1.7%)	0 (0%)	1 (1.9%)	0.77
Mild joint stiffness	2 (2.9%)	2 (3.3%)	1 (1.8%)	1 (1.9%)	0.94
Total	6 (8.8%)	6 (10.0%)	4 (7.1%)	4 (7.5%)	0.91

Values are expressed as n (%); Minor complications consisted of superficial wound infection, wound healing delay, transient nerve symptoms, and mild joint stiffness. There were no significant intergroup differences (p > 0.05)

Discussion

This study is one of the few to investigate the impact of physician continuity throughout the TKA process on patient satisfaction and functional outcomes. Our findings demonstrated that patients whose indication, surgery, and postoperative follow-up were all managed by the same physician (Group 4) tended to achieve higher functional (WOMAC, FJS-12) and quality-of-life (EQ-5D-3L, EQ-VAS) scores, along with higher general satisfaction levels**.** These results suggest that beyond surgical success, continuity of care may represent an important component in shaping patient experience and recovery.

Importantly, multivariable analysis demonstrated that only full continuity (Group 4) remained independently associated with better outcomes after adjustment for baseline and clinical variables, suggesting that the observed differences were not solely attributable to demographic or preoperative factors.

The mean postoperative WOMAC difference between Group 4 and Group 1 was 12.4 points. Clement et al. reported a minimal clinically important difference (MCID) of approximately 11 points for WOMAC following total knee arthroplasty [23]. The magnitude of difference observed in the present study is slightly above this threshold, supporting potential clinical relevance. For FJS-12, Ingelsrud et al. reported an MCID of approximately 14 points after total knee arthroplasty [24]. The observed between-group difference in our cohort approached this value, suggesting that the improvement in joint awareness may be clinically meaningful, although interpretation should remain cautious.

Although overall satisfaction after TKA is generally high, contemporary large-cohort studies continue to demonstrate that a clinically meaningful proportion of patients remain dissatisfied despite technically successful surgery [10,25]. Recent systematic reviews and registry-based analyses report that dissatisfaction persists even in modern practice, where overall satisfaction approaches 85–90% [7-9]. Moreover, mid-term studies evaluating contemporary implant designs, including medial pivot total knee systems, have demonstrated significant improvements in validated functional and patient-reported outcome measures, confirming the technical reliability of modern TKA practice [26].

Nevertheless, surgical precision and implant technology alone do not fully explain patient-perceived success. Psychological well-being, expectation management, clarity of communication, and the perceived quality of the patient–physician relationship remain key determinants of postoperative satisfaction.

Expectation management is a key determinant of patient-perceived success after TKA. Recent evidence emphasizes that fulfillment of preoperative expectations is among the strongest predictors of postoperative satisfaction, sometimes outweighing purely objective improvements [27]. Unmet expectations have repeatedly been identified as one of the leading causes of dissatisfaction after TKA [10,25]. Consistent physician involvement may facilitate clearer communication, reduce conflicting information, and support more effective expectation alignment throughout the perioperative period. Goodman et al. emphasized that the outcomes most valued by patients include pain control, functional recovery, quality of life, and effective communication [28]. In our study, physician continuity was associated with a more consistent communication style, which may help explain higher satisfaction levels even in the presence of minor postoperative issues.

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Recent systematic reviews have shown that most instruments used to assess TKA satisfaction lack sufficient content validity, particularly regarding domains such as communication, trust, and information continuity [29]. To address this gap, our study introduced a newly developed satisfaction questionnaire incorporating these elements, enabling a more comprehensive assessment of the emotional and interpersonal aspects of patient satisfaction.

Furthermore, recent studies in arthroplasty populations suggest that fragmentation of care is associated with higher healthcare utilization and less favorable patient experience following joint replacement [30]. Continuity of care has accordingly been described as an organizational quality indicator influencing trust and communication clarity [31]. Our findings extend this perspective to TKA by demonstrating an association between physician continuity and validated functional and quality-of-life outcomes.

While surgical experience contributes to technical success [12], technical skill alone does not guarantee patient satisfaction. Discontinuity of care has been identified as a frequent source of dissatisfaction after TKA, as reported by Mahdi et al. [13], and inadequate communication during follow-up has been associated with reduced satisfaction and compliance, as demonstrated by Shetty et al. [32]. In institutions with frequent physician rotation, inconsistencies in information and communication may weaken the therapeutic alliance. In this context, physician continuity may serve as both a relational and organizational stabilizing factor, potentially enhancing patient trust, communication clarity, and overall recovery experience.

Interestingly, in Group 3—where the same physician performed both the indication and surgery but not the follow-up—general satisfaction and FJS-12 scores remained higher than in groups without preoperative continuity. This finding supports emerging evidence suggesting that the decision-making and surgical phases are particularly influential in shaping trust and expectation alignment [27]. Even when follow-up is delegated, early-phase continuity may establish a durable therapeutic relationship.

Overall, these findings suggest that physician continuity should not be viewed solely as an interpersonal preference but as a structural component of patient-centered care in total knee arthroplasty. By enhancing communication consistency, strengthening expectation alignment, and supporting relational trust, continuity may complement technical excellence and contribute to more meaningful postoperative outcomes.

Strengths and Limitations

This study is among the few that comprehensively evaluated the concept of physician continuity throughout the TKA process. Patients were assessed not only through functional outcomes but also with quality-of-life measures (EQ-5D-3L, EQ-VAS) and a newly developed patient satisfaction questionnaire, providing a multidimensional perspective. The structured design consisting of four groups allowed clear comparison between full and partial continuity models, revealing distinct differences in patient experience. Comparable demographic and radiological characteristics among the groups strengthen the inference that the observed differences were more likely attributable to the organization of care rather than surgical variability.

This study also has some limitations. Its retrospective design limits the ability to establish causal relationships. In addition, physician continuity was not randomized and was determined by institutional workflow, surgeon availability, and scheduling logistics. Although multivariable regression analyses were performed to adjust for measurable confounders, residual confounding related to unmeasured organizational or provider-level factors cannot be fully excluded. Therefore, the observed associations should be interpreted within the limitations of an observational design.

A substantial proportion of screened patients were excluded due to incomplete follow-up, and detailed baseline and PROM data were unavailable for these cases. Therefore, direct comparison between included and excluded patients could not be performed. Although there was no indication of systematic clustering within a specific physician continuity pathway, attrition-related selection bias cannot be entirely excluded.

Data collection via structured telephone interviews introduces a potential recall bias. However, the interviewer was blinded to physician continuity group allocation, which reduces the likelihood of measurement bias related to group awareness. Because multiple functional and satisfaction outcomes were analyzed, the possibility of increased type-I error due to multiple comparisons cannot be completely excluded. Although Dunn–Bonferroni correction was applied in post-hoc analyses, no global adjustment for multiple outcomes was performed.

Furthermore, being a single-center study may limit the generalizability of the results. Additionally, although the satisfaction questionnaire was specifically developed for this study and demonstrated high internal consistency (Cronbach's $\alpha = 0.83$), it has not been externally validated, which may be considered a limitation.

Despite these limitations, the findings provide valuable insight into the potential role of physician continuity in TKA care.

Conclusion

This study suggests that physician continuity throughout the total knee arthroplasty process is associated with improved functional and patient-reported outcomes. When the indication, surgery, and postoperative follow-up were conducted by the same physician, higher scores were observed in WOMAC, FJS-12, EQ-5D-3L, EQ-VAS, and general satisfaction scores. Perceived continuity confidence demonstrated a clear gradient across groups, supporting the relevance of continuity in shaping patient trust. Continuity may strengthen the sense of trust and enhance compliance by maintaining consistent communication and information delivery throughout the treatment pathway.

Clinically, in institutions where multiple physicians or rotational systems are common, maintaining patient care with minimal physician changes may be beneficial**.** Such an approach may potentially enhance patient satisfaction, functional recovery, and adherence to treatment. Future multicenter prospective studies are warranted to further clarify the long-term impact of physician continuity on prosthesis survival, revision rates, and quality of life.

Ultimately, physician continuity may represent an important component of patient-centered care.

Ethical Approval
The study protocol was approved by the Institutional Review Board of the University of Health Sciences Baltalimani Bone Diseases Training and Research Hospital (Approval No: 28/191, Date: October 28, 2024).

Patient Consent
Written informed consent was obtained from all participants.

Conflict of Interest
The authors confirm the absence of any conflicts associated with this work.

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