

## Original Research Article

# Assessment patient satisfaction after total knee replacement in Indian population

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### ABSTRACT

**Background:** We aim to assess the satisfaction of patients after total Knee replacement in Indian population. Total knee Arthroplasty is most commonly performed for osteoarthritis, and also for other knee diseases such as rheumatoid arthritis and psoriatic arthritis. Knee replacement surgeries helps to restore normal mechanics during level walking as well as more demanding and complex activities such as stair negotiation. Patient satisfaction rates for the procedure have been reported between 81-97%. However, this leaves a significant portion of the TKR population as dissatisfied with the outcomes of the replaced knee.

**Methods:** Patients were assessed at opd visit or with telephonic conversation and scores are calculated and mentioned in excel sheet. Post surgery satisfaction (PSS) score is the score created to measure the satisfaction after total hip replacement. This score contains different questionnaires. These questions include inquiry about relief of pain, ability to do daily routine activities, requirement of walking aids etc. Score contains total 7 questions.

**Results:** Out of 55 patients we found through this study that about 92.7% were classified as satisfied while 7.3% patients were dissatisfied. Satisfaction rate is more as compared to dissatisfaction rate.

**Conclusions:** In present study we have tried to eliminate other factors responsible for dissatisfaction such as hospital ward cleanliness, hospital administration, patient and hospital staff communication. we recommend total knee replacement surgery for end stage arthritis and it is more beneficial to the patients in terms of improvement in post-operative pain and function.

**Keywords:** Total knee replacement, Patient satisfaction score, Osteoarthritis

### INTRODUCTION

Osteoarthritis (OA) is a joint disease characterized by degeneration of joint cartilage. Knee OA is one of the most common forms of OA and it is projected to afflict approximately 25% of the population by the year 2030.<sup>1-3</sup> Total knee arthroplasty, is a surgical procedure to replace the weight-bearing surfaces of the knee joint to relieve pain and disability. In the 1990s patients reported outcome measures (PROMS) were developed to reduce the risk of bias if outcome is rated by the surgeon. Robertsson et al reported that 17% of total knee replacement (TKR) patients were either dissatisfied or uncertain with respect

to the outcome.<sup>3</sup> The rate of satisfaction has been studied in many other groups of patients and found to be consistent in many countries. Only 4 out of 5 patients are satisfied after TKR.<sup>4-6</sup> Current research on the dissatisfied population has focused on survey data and minimal physical testing.<sup>7-9</sup> A number of factors have been identified that may contribute to reduced patient satisfaction: limited OA on the preoperative X-ray of the knee (especially in young active patients), unrealistic patient expectations before surgery, comorbidities like depression and diabetes, and worse preoperative pain scores.<sup>10-13</sup> These factors can only explain part of the relatively large proportion of unsatisfied TKA (total knee

replacement) patients. Understandably, orthopaedic research worldwide has been increasingly trying to understand which patient groups are more likely to be unsatisfied, why they are unsatisfied, and has tried to improve outcome. More and more attention of researchers is focused on trying to understand functional outcome and on finding better ways of measuring functional outcome in TKA patients. Considering above mentioned facts and scientific data, we decided to study patient satisfaction after total knee replacement in Indian population.

## METHODS

### Study type

A longitudinal study of patients with Total knee replacements operated in a tertiary care hospital was done. After knee replacement they were evaluated with questionnaires about the satisfaction after surgery at OPD follow up or on telephonic conversation and scored.

**Table 1: Post-surgery satisfaction score (PSS) based on questionnaire.**

Question	Answers	Score
How satisfied are you with pain relief after surgery?	Very satisfied	4
	Satisfied	3
	Unsatisfied	2
	Very unsatisfied	1
Are you able to do your routine daily activities?	Very easily	4
	Easily	3
	With difficulty	2
	Not at all	1
If given a choice, would you do the surgery again knowing what you know now?	Yes	3
	Not sure	2
	No	1
Would you do the same surgery if you have similar complaints on your opposite limb?	Yes definitely	3
	Not sure	2
	No	1
Would you recommend this surgery to other patients with similar complains?	Yes	3
	Not sure	2
	No	1
After surgery did you developed confidence in yourself?	Very confident	4
	Confident	3
	Not at all	2
	Reduced confidence	1
Do you feel the need of assistance while walking?	Never	3
	Sometimes use a cane	2
	Use cane all the time	1

### Study area and period

This study will be conducted in a tertiary care centre KEM hospital, Mumbai over a period of 3 years from December 2019 to December 2022.

### Inclusion criteria

Inclusion criteria were; male and female of Indian origin aged more than 21 to 80 years and patients willing for regular follow up/telephonic conversation in a case of total knee replacement.

### Exclusion criteria

Exclusion criteria were; age <21 years and >80 years, revision TKR cases, BMI >40 and Patient not willing for regular follow up/telephonic conversation.

### Procedure

As such there is no such standardised method for measurement of satisfaction but different satisfaction scores are available to assess satisfaction based on questionnaires and clinical examination. Post-surgery satisfaction score (PSS) is a score based on questionnaire and this was used to assess patient satisfaction in this study. The patients were called to opd and/or questionnaire was asked over telephonic conversation with the patient.

### Score to assess patient satisfaction-PSS Score

We created Post surgery satisfaction (PSS) score to measure the satisfaction after total knee replacement. This score contains 7 different questionnaires. These questions include inquiry about relieve of pain, ability to do daily routine activities, requirement of walking aids etc. According to that total score is 24. On the basis of this percentage of patients satisfied after total knee replacement was calculated.

### Sample size

The sample size was calculated by using the following formula;

$$N = (\sigma_1 + \sigma_2)^2 \frac{(Z_{1-\alpha/2} + Z_{1-\beta})^2}{(m_1 - m_2)^2}$$

Where N is total sample size; sigma 1 is standard deviation of preoperative OKS score, sigma 2 is standard deviation of postoperative OKS score,  $Z_{1-\alpha/2}$  is probability of type 1 error,  $Z_{1-\beta}$  is power,  $m_1$ = Mean of preoperative score and  $m_2$ = mean of postoperative score. Considering the values given by Sajjadi et al sample size was calculated to be 49.11 rounded off to 50. Considering 10% lost to follow up sample size was taken as 55. The study was conducted as per the national and international guidelines for

conducting research in human subjects. The privacy and confidentiality of the patients is maintained in the study and not revealed except as required by court of law. The identity of participant will not be revealed in publication.

### Statistical analysis

Data was entered into Microsoft Excel (Windows 7; Version 2007) and analyses was be done using the Statistical Package for Social Sciences (SPSS) for Windows software (version 22.0; SPSS Inc, Chicago). Descriptive statistics such as mean and standard deviation (SD) for continuous variables, frequencies and percentages were calculated and categorical variables were determined. Association between variables was analyzed by using Chi-square test for categorical variables. Unpaired t test and ANOVA (Analysis of Variance) were used to compare mean of quantitative variables having 2 and more than 2 categories respectively. Level of significance to be set at 0.05.

## RESULTS

Total 55 patients of the age range above 20 years and below 80 years who underwent total knee replacement at tertiary care hospital formed the study population. These patients were selected based on the inclusion and exclusion criteria. Study was conducted from June 2020 to May 2021. Following observations were made and results were derived from the same. There was a male preponderance of cases in our study with 35 (63.64%) male patients and 20 (36.36%) female patients. Male to female ratio was 1.75:1.

**Table 1: Distribution based on gender.**

Gender	N	%
Male	35	63.64
Female	20	36.36
Total	55	100

**Table 2: Distribution based on side affected.**

Side affected	N	%
Left	26	47.27
Right	29	52.72
Total	55	100

**Table 3: Distribution according to patient satisfaction.**

Parameters	N	%
Satisfied	51	92.73
Dissatisfied	04	7.27
Total	55	100

Our study showed a little dominance of males over females in terms of gender distribution. Out of 55 patients studied, majority belonged to age group 41 to 60 years old (36 cases, 58.18%); followed by 17 cases (30.9%) from age group 61-80 years old. 2 patients (10.9%) were found in

age groups 21 to 40 years old. Youngest patient enrolled was 31 years old female while oldest ones were 70 years old males. Mean age was found to be 56.58±8.29 years.

### Demographic data of patients

It was seen that most commonly right side of the patient was affected more than that of left side. Out of 55 patients, 29 patients (52.72%) had affected their right side while 26 patients (47.27%) had affected their left side.

All patients were assessed based on the questionnaire with respect to the pain, ability to do daily activity, post-surgery confidence, assistance while walking and wanting to do same surgery on opposite limb etc. 51 patients were classified as satisfied while 4 patients were dissatisfied due to uneventful complications that may have occurred either during procedure or post surgically. Patients having total score 15 and below are considered as dissatisfied.

## DISCUSSION

Total knee arthroplasty (TKA) is one of the most effective surgical interventions for pain relief and functional recovery in patients with advanced degenerative arthritis or rheumatoid arthritis.<sup>15</sup> Aging of the society has led to increases in the prevalence of arthritis and the incidence of TKA for end-stage arthritis. Despite its widespread use and popularity, several studies have reported that ~20% of patients are dissatisfied with the outcomes of primary TKA.<sup>4,16</sup> Previous studies have explored the relationship between post-TKA patient satisfaction and various combinations of pre- and post-surgery clinical and patient-reported measures. Factors found to be related to patient dissatisfaction across multiple studies include: knee-related factors (e.g., pain, functioning, stiffness and inflammation), self-rated factors (e.g., physical and mental health status, and quality of life), pre-surgery expectations not met, complications, pain catastrophizing, and patient demographics (e.g., age, gender and employment status).<sup>4,17-21</sup>

Despite the importance of measuring patient satisfaction as a reflection of the value of the orthopaedic intervention, the satisfaction instruments and quantification methods used after TKR are highly heterogeneous.<sup>22</sup> The reasons for such heterogeneity have not been rigorously investigated, however a recent study indicates the importance of how the satisfaction questions are framed.<sup>13</sup> The authors found the focus of the satisfaction question (such as general satisfaction as compared to satisfaction with recreational activities) significantly affected the rates of satisfaction by as much as 10%.<sup>12</sup> Much of the published data regarding patient satisfaction has been obtained from studies conducted on Western populations. However, there is a paucity of such data from Asian populations. Therefore, the present study aimed to evaluate the level of patient satisfaction after TKA in an Indian population. Other available satisfaction measurements also include

functional assessment and other factors such as hospital cleanliness, communication etc which are not related specifically to surgical procedure. This study pertains to only satisfaction part pertaining to surgical procedure and eliminating other factors. Post Surgery Satisfaction Score is score based on self-developed questionnaire based on experience and this will be used to assess patient satisfaction in this study. The present study included 55 patients the age range above 20 years and below 80 years who underwent TKR at the tertiary care hospital. In present study male to female ratio was 1.75:1. Of total 55 cases 35 males were there and 20 females. Majority belonged to age group 41 to 60 years old with mean age of  $56.58 \pm 8.29$  years. It is generally observed that right side of the patient gets affected more than left side in majority diseases. In present study too right knee was affected more than left knee. The cause for TKR was osteoarthritis in 46 cases while 9 had rheumatoid arthritis.

### Limitations

As due to the covid pandemic during study period the total number of cases for the study were less. This study does not include the satisfaction of patients with reference to the hospital facilities, patient and staff communication, hospital cleanliness etc.

### CONCLUSION

Total knee replacement has been considered as a successful procedure for knee arthritis that gives relatively high satisfaction than the other surgical treatments from the a surgeon's point of view. However, it common to observe discrepancies in patient-surgeon satisfaction and we see that patients are often less satisfied than the outcome that the surgeons expect, suggesting the need to develop more objective method of measuring patient satisfaction . Among various factors that contribute to patient satisfaction, some factors can be managed by the surgeon, which should be improved through continuous research. In Present study we have tried to eliminate other factors responsible for dissatisfaction such as hospital ward cleanliness, hospital administration, patient staff communication, Hospital reception, Patient staff communication, Low social support, Living alone, patients expectation before surgery etc and have used a satisfaction questionnaire which focuses more on the surgical procedure done. So we found that patients had more satisfaction as we eliminated other factors from post surgery satisfaction questionnaire.

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