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Quality of Life among Saudi Patients with Knee Replacement: A Descriptive Study (2024)

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Abstract:
Background: Knee replacement (KR) is an established surgical option for advanced knee joint disease, particularly when pain and functional limitations persist despite conservative treatment. The procedure aims to relieve pain, restore mobility, and improve patients' quality of life. Aim: This study assessed quality of life among Saudi patients who had undergone knee replacement. Research design: A descriptive research design was adopted. Setting: The study was conducted at the Orthopedic Outpatient Clinic at Saudi University Hospital. Sample: A convenience sample of 100 patients was included. Tools: Data were collected using a structured interview questionnaire covering demographic and clinical characteristics, knowledge, and reported practices, together with a quality-of-life scale. Results: 52% of participants were aged 50 years or older, with a mean age of 50.98±16.55 years; 64% were female, and 64% had undergone total knee replacement. Good knowledge was reported for 26% of participants, 58% had satisfactory reported-practice scores, and 72% had good overall quality-of-life scores. Conclusion: The findings indicate that good knowledge was limited to just over one quarter of participants, while more than half reported satisfactory practices and nearly three quarters had good quality-of-life scores. Recommendations: Ongoing follow-up and targeted patient education are recommended to support recovery, reduce complications, and identify problems that may require further assessment.

Keywords: Knee replacement; quality of life; patients.

Introduction:

Knee replacement (KR) is a surgical procedure in which the damaged weight-bearing surfaces of the knee joint are replaced with prosthetic components. Total knee replacement involves all three compartments of the joint: the medial, lateral, and patellofemoral compartments. Partial, or unicompartmental, replacement is limited to the damaged compartment (Lei et al., 2019).

Because it can reduce pain, correct deformity, and improve joint function, knee replacement is widely used for advanced osteoarthritis. Most procedures are performed for primary or post-traumatic osteoarthritis. Surgery is generally considered when degenerative changes cause persistent discomfort and functional restriction despite conservative management. Other possible indications include rheumatoid arthritis, peri-articular fractures, and selected bone or joint conditions. Advances in implant design, bearing surfaces, and surgical techniques have contributed to improvements in outcomes (Khalil et al., 2020).

In Saudi Arabia, osteoarthritis is a common reason for orthopedic assessment and may lead to surgical treatment in patients with substantial symptoms. Knee osteoarthritis has been reported to affect approximately 13%–30% of the population in Saudi Arabia, creating a considerable burden for patients and the healthcare system (Alkindy et al., 2024).

Quality of life is an important outcome when evaluating knee replacement because it reflects more than pain relief alone. Physical functioning, psychological well-being, social participation, and patients' perceptions of their health all

contribute to the overall assessment. Previous studies have reported improvements in pain and functional ability after knee replacement (Siviero et al., 2020).

Nurses and other healthcare professionals play an important role in supporting patients before and after knee replacement. Their responsibilities include providing education and counselling about medication adherence, prescribed exercises, physical therapy, routine follow-up, appropriate nutrition, and precautions intended to prevent complications. Continued guidance and encouragement may help patients participate in recovery and regain function (Greengard & Dermott, 2020).

Aim of the study:

The aim of this study was to evaluate quality of life among Saudi patients who had undergone knee replacement.

Research questions:

1- What level of knowledge do patients who have undergone knee replacement demonstrate?
2- What post-operative practices do patients with knee replacement report?
3- How do patients with knee replacement rate their quality of life?

Subjects and Method

Research design:

A descriptive design was used to assess the study variables among patients with knee replacement.

Setting:

The study took place at the Orthopedic Outpatient Clinic of Saudi University Hospital.

Sample:

A convenience sample of patients who had undergone knee replacement and attended the previously specified clinic was recruited over four months. Eligible participants had to be willing to take part and able to complete the interview without communication difficulties or a disability that would prevent participation.

Tools for data collection:

Two instruments were used for data collection.

Instrument I was a structured interview questionnaire developed by the investigator following a review of relevant literature. The questionnaire was written in clear, simple Arabic and consisted of three parts:

Part I addressed participants' demographic characteristics. It included eight items covering age, sex, marital status, educational level, occupation, place of residence, monthly income, and family type.

The clinical-history section included three items concerning the time elapsed since knee replacement, the type of procedure performed, and the reasons for undergoing surgery.

Part II assessed participants' knowledge about knee replacement and consisted of eight questions.

Knowledge scoring procedure:

Responses were scored according to completeness and accuracy: 2 points were assigned to a complete and correct answer, 1 point to a correct but incomplete answer, and 0 points to a "do not know" response. Scores for each knowledge area were added, averaged across the relevant items, and converted into percentages.

The overall knowledge score was classified as good when it exceeded 75% (more than 12 points),
average when it ranged from 50% to 75% (8–12 points), and poor when it was below 50% (fewer than 8 points).

Part III assessed participants' reported post-operative practices and included four domains:

- **Nutrition** which included (9) items.
- **Exercise** which included (3) items.
- **Compliance of medication and follow- up** which included (4) items.
- **Precautions after operation of knee replacement** which included (7) items.

Scoring of reported practices:

Each practice item was scored according to frequency: 2 points for "always," 1 point for "sometimes," and 0 points for "never." Item scores were summed for each domain, averaged, and converted into a percentage.

The overall reported-practices score was considered satisfactory at 60% or higher (14 points or more) and unsatisfactory when it was below 60% (fewer than 14 points).

Instrument II was a quality-of-life scale for patients with knee replacement, adapted from the Short Form-36 and cited to Batarfi et al. (2018). As described in the study, responses were recorded on a three-point Likert scale (always, sometimes, and never) across physical, psychological, and social domains. Short-Form 36

- Physical domain which included (11) items**.**
- **Psychological domain** which included (10) items
- **Social domain** which included (7) items.

Quality-of-life scoring procedure:

Responses were scored as 0 for “always,” 1 for “sometimes,” and 2 for “never.” Scores were added for each quality-of-life domain, averaged across the relevant items, and converted into percentages.
The overall quality-of-life score was classified as good when it exceeded 75% (more than 42 points), average when it ranged from 50% to 75% (28–42 points), and poor when it was below 50% (fewer than 28 points).

Content validity
Three experts reviewed the data-collection instruments to assess clarity, relevance, comprehensiveness, applicability, and ease of administration. Minor changes were made in response to their recommendations.
Reliability:
The internal consistency of the instruments was assessed using Cronbach’s alpha. The reported reliability coefficients were 0.59 for patients’ knowledge, 0.75 for reported practices, and 0.90 for quality of life.
Ethical considerations:
Before the interview, each participant provided oral consent and received a brief explanation of the study’s purpose.
Pilot study
A pilot study involving 10 patients (10% of the sample size) was conducted to evaluate the clarity and applicability of the instruments and estimate the time required to complete them.

Data were collected at the Orthopedic Outpatient Clinic of Saudi University Hospital over four months, from the beginning of January through the end of April 2024.
Statistical analysis:
The collected data were coded, organized, and analyzed using the Statistical Package for the Social Sciences (SPSS), version 20. Frequencies and percentages were used to summarize categorical variables. Spearman’s rank correlation coefficient (r) was applied to examine relationships among the study variables, and statistical significance was assessed using p-values.
The following criteria were used to interpret statistical significance:
(p value)

- P. value > 0.05 Not significant
- P. value < 0.05 StatisticallySignificant
- P. value < 0.001 Highly statisticallysignificant .

The results are presented below, covering participants’ demographic and clinical characteristics, knowledge, reported practices, quality of life, and the relationships among these variables.

Table (1) indicates that 52.0% of participants were aged 50 years or older, and the mean age was 50.98±16.55 years. Women represented 64.0% of the sample, while 58.0% were married. University education or higher was reported by 54.0%; 38.0% were employees, 56.0% reported sufficient monthly income, and 74.0% lived in nuclear families.

Demographic characteristics	No.	%
Age/year		
<30	12	12.0
30-	12	12.0
40-	24	24.0
50 -	52	52.0
Mean 50.98±16.55		
Sex		
Male	36	36.0
Female	64	64.0
Marital status		
Single	10	10.0
Married	58	58.0
Widowed	24	24.0
Divorced	8	8.0
Level of education		

Can't read and write	10	10.0
Read and write	10	10.0
Basic education	14	14.0
Secondary education	12	12.0
University education or more	54	54.0
Occupation		
Employee	38	38.0
Free business	12	12.0
Retired	14	14.0
House wife	32	32.0
Not working	4	4.0
Monthly income		
Enough and saving	16	16.0
Enough	56	56.0
Not enough	28	28.0
Type of family		
Individual	2	2.0
Nuclear	74	74.0
Extended	24	24.0

Table (2) shows that 78% of participants provided a complete and correct answer about the importance of knee replacement. However, 60% were unable to identify the different types of knee replacement.

Medical history	**No.**	**%**
Duration of KR operation		
<6months 6months- one year One year and more	26	26.0
	34	34.0
	40	40.0
Types of KR operation		
Total knee replacement Partial knee replacement Kneecap replacement Revision knee replacement	64	64.0
	22	22.0
	8	8.0
	6	6.0
***Causes of performing KR operation**		
Severe pain in the knee jointStiffness in the joint Having difficulty walking Inability to carry out the usual daily activities	76	76.0
	40	40.0
	42	42.0
	26	26.0

Figure (1) shows the distribution of participants by overall knowledge level: 38% had average knowledge, while 26% were classified as having good knowledge about knee replacement.

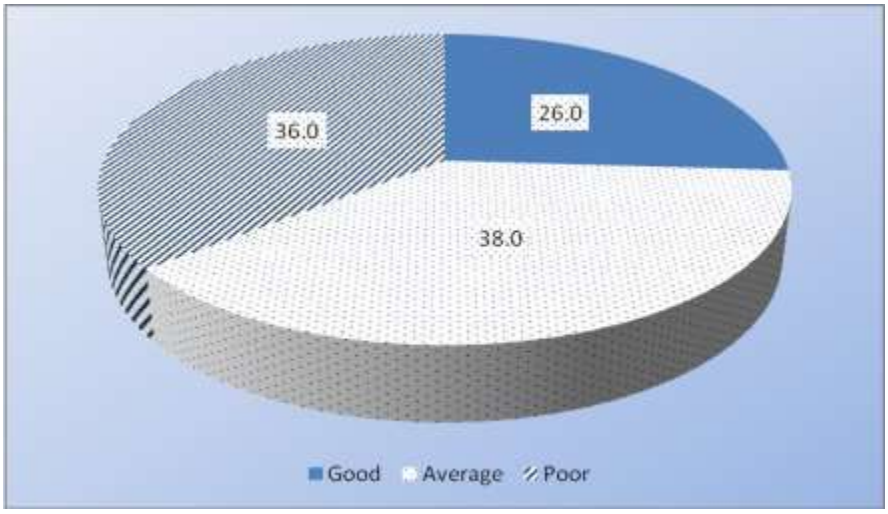


Figure (2) indicates that 58% of participants achieved satisfactory overall reported-practice scores following knee replacement, whereas 42% had unsatisfactory scores.

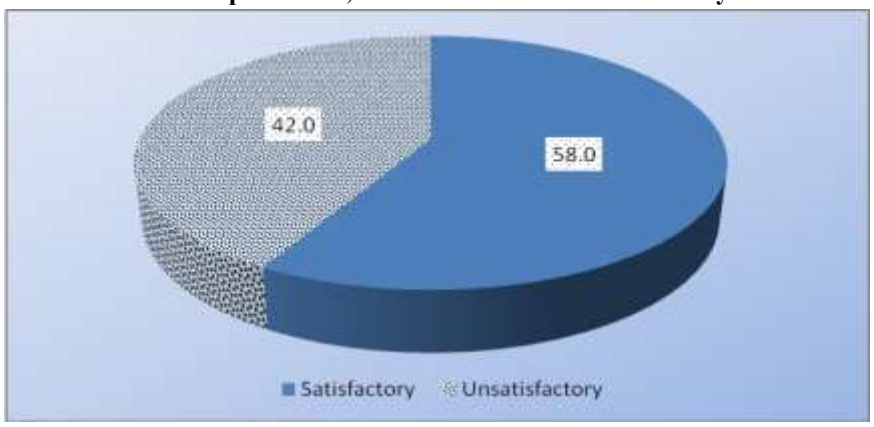
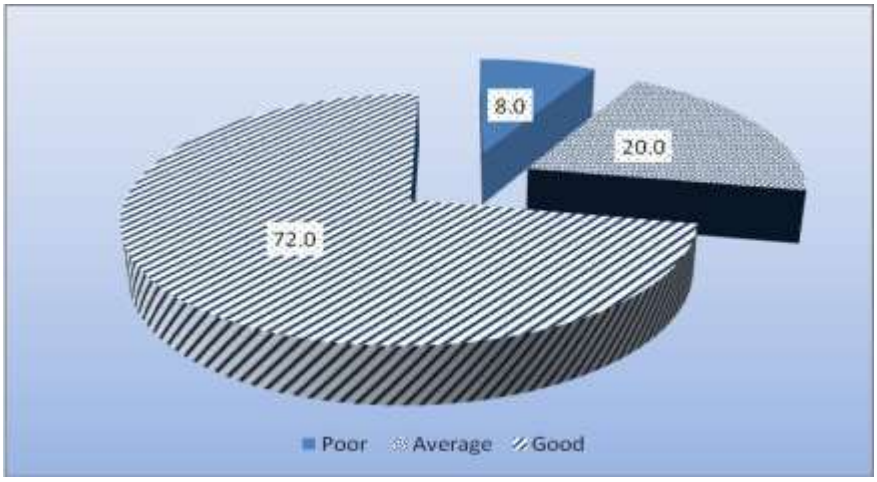


Figure (3) demonstrates that 72% of participants had good overall quality-of-life scores, while 8.0% were classified as having poor quality of life.



Knowledge	Complete correct Answer		Incomplete of correct answer		Don`t know	
	No.	%	No.	%	No.	%
Meaning of KR.	26	26.0	38	38.0	36	36.0
Causes that leads to KR operation.	28	28.0	34	34.0	38	38.0
Risk factors that leads to KR operation.	32	32.0	40	40.0	28	28.0
Types of KR operation.	22	22.0	18	18.0	60	60.0
Importance of KR operation.	78	78.0	8	8.0	14	14.0
Measures for diagnosis the need of KR operation.	28	28.0	40	40.0	32	32.0
Instructions after operation of KR.	46	46.0	32	32.0	22	22.0
Complications of KR.	38	38.0	46	46.0	16	16.0

Table (4) presents the correlations among knowledge, reported practices, and quality of life. The analysis identified statistically significant positive relationships between knowledge and reported practices, and between knowledge and quality of life.

		Total knowledge	Total practices	Total quality Of life
Total knowledge	R	1	0.266	0.392
	p-value		.007*	.000**
	N	100	100	100
Total practices	R	.266	1	0.152
	p-value	.007*		.130
	N	100	100	100
Total quality of life	R	0.392	0.152	1
	p-value	.000**	.130	
	N	100	100	100

Discussion

With respect to demographic characteristics, 52% of the participants were aged 50 years or older, and the mean age was 50.98±16.55 years. Women accounted for 64% of the sample. Age-related changes in the knee joint and differences in the occurrence of degenerative joint disease may partly explain the demographic pattern observed. This finding is broadly consistent with Michel et al. (2019), who reported that most patients undergoing knee replacement

were older adults and that women represented a greater proportion of the sample.

Regarding clinical history, severe knee-joint pain was the most frequently reported reason for undergoing knee replacement, affecting more than three quarters of participants. Persistent pain can restrict mobility and interfere with daily activities, and may lead patients to consider surgery when other treatment options do not provide sufficient relief. This finding is consistent with the discussion by Szabo (2018), which highlighted severe pain as an important factor in patients' decisions about knee replacement.

The findings also showed that knowledge about the reasons for knee replacement was limited: only 28% of participants provided a complete and correct response about the causes leading to the procedure. This indicates that patients may benefit from clearer explanations of the conditions and symptoms that can lead to surgery. The result can be considered alongside Cronström et al. (2020), who examined patients' understanding and management of knee osteoarthritis before joint replacement.

In relation to overall knowledge, only 26% of participants were classified as having good knowledge about knee replacement, while 38% had average knowledge and 36% had poor knowledge. Limited access to clear, structured information may contribute to gaps in patients' understanding of the procedure and its requirements. A similar concern regarding patient knowledge was reported by Mohrej et al. (2018).

More than half of the participants (58%) achieved satisfactory overall reported-practice scores. In particular, the study findings showed that 64% had satisfactory practices related to post-operative precautions. Following professional instructions may help patients protect the operated joint, support functional recovery, and reduce the risk of avoidable complications. Nevertheless, the reported nutritional-practice findings indicate that further education may be needed in this area.

The study found that 72% of participants had good overall quality-of-life scores, while 20% had average scores and 8% had poor scores. This suggests that most participants in the sample reported a favorable quality of life after knee replacement. The finding is in keeping with previous reports of improved health-related quality of life following the procedure, including those of Batarfi et al. (2018) and Leem et al. (2019).

Correlation analysis demonstrated positive associations between total knowledge and reported practices ($r=0.266$, $p=0.007$), and between knowledge and quality of life ($r=0.392$, $p<0.001$). The relationship between reported practices and quality of life was also positive, but it was not statistically significant ($r=0.152$, $p=0.130$). These findings suggest that better-informed patients may also report more appropriate self-care practices and more favorable quality-of-life outcomes. However, the correlations do not establish a cause-and-effect relationship.

Conclusions

The study found that 26% of participants had good knowledge about knee replacement, 58% achieved satisfactory reported-practice scores, and 72% had good overall quality-of-life scores. Statistically significant positive correlations were observed between knowledge and reported practices and between knowledge and quality of life. The relationship between reported practices and quality of life was not statistically significant.

Recommendations

A structured health-education program should be developed for patients undergoing knee replacement to strengthen their understanding of the procedure and reinforce recommended post-operative practices.

Regular follow-up should be provided to assess recovery, monitor the effectiveness of the procedure, identify complications, and determine whether further clinical intervention is needed.

Further research should examine approaches to improving quality of life among patients who have undergone knee replacement.

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