Evidence Based Nursing Guidelines and Patients' Quality of Life after Knee Replacement Surgery

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Abstract

Background: The surgical treatment for osteoarthritis in its advanced stages is knee replacement surgery, which is helpful in reducing pain, correcting deformities, and restoring function. In order to improve patient outcomes and their rate of recovery, evidence-based nursing recommendations are essential. **Aim:** Was to evaluate the effect of evidence-based nursing guidelines on patients' quality of life after knee replacement surgery. **Research design:** This research's aim was achieved through the use of a quasi-experimental research design specifically a one-group pre/post-test. **Setting:** The research was carried out at Benha University Hospital in the Qualyubia Governorate, Egypt, at the orthopedic department, which is connected to the surgery department and outpatient clinics. **Subjects:** The research included a convenience sample of 100 patients who underwent knee replacement surgery. **Instruments:** Two tools were used: Tool (I): A structured interviewing questionnaire, it involved the patients' personal data, medical history and patients' knowledge assessment. The second tool was the patients' Quality of Life Scale, which included three domains: The social, psychological, and physical. **Results:** According to the research's findings, the overall knowledge levels over the several research phases varied in a very statistically meaningful way. In contrast, 27% of the patients had a satisfactory level of overall knowledge about knee replacement surgery prior to the adoption of the guidelines, and 88%, 85%, and 82% of them had a satisfactory level of knowledge immediately following, three months after, and six months after the guidelines were implemented and the patients' overall mean quality of life score was 51.38 ± 3.83 prior to the nursing guidelines implementation, and it changed to 47.27 ± 4.27 and 31.92 ± 4.89 post three and six months of the guidelines' implementation, with highly significant differences (p=<0.001*). **Conclusion:** Following the implementation of nursing guidelines, patients' knowledge and all quality of life subscales regarding their physical, psychological, and social status significantly improved. **Recommendations:** Larger sample sizes should be used in future research to evaluate patients' quality of life following knee replacement surgery.

Keywords: Evidence based nursing guidelines, Quality of life and Knee replacement surgery

Introduction

The gold standard surgical treatment for end-stage osteoarthritis (OA) is still knee replacement (KR) surgery, also known as knee arthroplasty (KA), which improves quality of life. It involves using a prosthetic device that works similarly to the knee to resurface the worn-out surfaces of the knee joint **(Perry & Carey, 2024).**

Although it is also done on patients with rheumatoid arthritis, fractures, and cancers, it is most frequently done on people with osteoarthritis (OA) in the knee. KR is the best surgical technique for lowering pain,

enhancing mobility, and enhancing patients' health-related quality of life (HRQOL), and it has been shown to be successful in short-term follow-up **(Zwicker, 2023).**

Knee replacement surgery affects social and economic aspects of quality of life in addition to physical health. Increased social interaction and a return to work or leisure activities that were previously limited because of knee discomfort are common outcomes of knee replacement surgery. This lessens the financial burden of chronic infirmity while simultaneously enhancing their social well-being. For patients of working age, the financial advantages are especially noteworthy because a successful knee replacement can result in higher production **(Harrison et al., 2024).**

In order to maximize healing and minimize problems, nursing care for patients after knee replacement surgery takes a multimodal approach. Thorough preoperative education, pain control, and early mobilization are crucial procedures to improve joint function and avoid deep vein thrombosis. To encourage healing and restore mobility, nurses must oversee wound care, keep an eye out for infection symptoms, and make sure patients follow their rehabilitation regimen. For knee replacement patients to have excellent results, evidence-based therapies including patient-centered education and customized care regimens are essential **(Smith & Jones., 2024).**

Significance of the research

One of the most popular elective surgical procedures in orthopedics, knee replacement (KR) is the gold standard for treating end-stage osteoarthritis of the knee. It can improve function, reduce discomfort, and restore mobility. Approximately 750,000 knee replacement surgeries are carried out annually in the worldwide statistics **(Mandour, 2022).** Every year, between 15,000 and 16,000 knee replacements are performed in Egypt **(Abdelhafeez et al., 2022).** There were 130 patients of knee replacement surgery performed each year **(Benha University Hospital Statistical Office, 2022).**

Drawing from clinical observations conducted in Benha University Hospital's orthopedic department and outpatient orthopedic clinic. In recent years, there has been a noticeable rise in the number of patients undergoing total knee arthroplasty; these patients need ongoing evaluation, close observation, and follow evidence-based nursing guidelines to preserve their quality of life and lower the incidence of problems that impact patient outcomes. It is also anticipated that the results of this study may contribute to better patient care and the establishment of evidence-based data that can support nursing practice and research.

Aim of the study:

This study aimed to evaluate the effect of evidence based nursing guidelines on patients' quality of life after knee replacement surgery.

Research hypotheses:

H1-The mean score of patients' knowledge could be significantly higher post implementing nursing guidelines than before.

H2- The mean score of patients' quality of life could be significantly higher post implementing nursing guidelines than before.

H3-There could be a significant correlation between patients' knowledge and their quality of life.

Subjects and Method

Design: To accomplish the research's aim, a quasi-experimental research design (pre-post-test) was used. Establishing a cause-and-effect link between an independent and dependent variable is the goal of a quasi-

experimental design. When actual trials are not feasible or ethically acceptable, it is a helpful tool **(Thoma, 2024).**

Research variables:

Evidence based nursing guidelines are the independent variable, and patient knowledge and quality of life are the dependent variables.

Settings: The research was carried out at Benha University Hospital in the Qalyubia Governorate, Egypt, at the orthopedic department, which is connected to the surgery department and outpatients' clinics.

Subjects: A convenience sample of all available adult patients (100) who consent to participate in this research and are having knee replacement surgery from the previously mentioned setting. A total of 130 knee replacement patient were reported each year, according to Benha University Hospital data **(Benha University Hospital Statistical Office, 2022).** Utilizing the following formula:

Calculation of sample size:

Calculation of sample size was done by

$$n = \frac{N}{1 + N\,(e)2}$$

Where: n= The required sample size, N= Total number of patients (130), e= Error tolerance (0.05), 1= A constant value **(Tejada and Punzalan, 2012).** So, sample size was (100) patient.

Tools for data collection:

Tool I: A Structured interview questionnaire:

It aimed to assess patients' knowledge regarding KR surgery. This questionnaire was designed by researchers after reviewing related literature and scientific references **(Kornuijt et al., 2019; Wu et al., 2022; Zong et al., 2022; Jain, 2023; Konnyu et al., 2023; Dutta et al., 2024).** It was divided into three parts and contained items pertaining to various aspects given in a basic Arabic structure:

Part I: Concerned with patients' personal data including age, gender, marital status, level of education, occupation, residence, education level and the floor which they lives in.

Part II: It aimed to assess the patient medical and family history. It was composed of (ten) closed ended questions related to patient history assessment with knee replacement surgery included time since diagnosis with knee arthritis, family history, previous information about knee arthritis, had knee replacement, causes of knee replacement surgery and previous incidence of complications post knee replacement surgery.

Part III: Patients' knowledge assessment regarding knee replacement surgery (pre and post evidence-based nursing guidelines); it aimed to assess the patients' knowledge regarding KR surgery. It included 38 closed-end questions as the following:

A- Patients' basic knowledge regarding knee joint which included (nine) closed ended questions.

B- Patients' basic knowledge regarding knee replacement surgery which included (seven) closed ended questions.

C- Knowledge about health practices after KR surgery which included (22) closed ended questions related to:

-Patients' basic knowledge regarding healthy practices of balanced diet which included (11) closed ended questions.

-Patients' basic knowledge regarding healthy practices of exercise and physical activities

which included (seven) closed ended questions.

-Patients' basic knowledge regarding healthy practices of commitment to the treatment regimen and follow-up which included (four) closed ended question.

Patients' knowledge scoring system:

The score was distributed as: one grade for each correct answer and zero for incorrect answer, the total score will be converted into percentage and graded as the following:

- From 75% and above graded as satisfactory level of knowledge (28 score or more).
- Below 75% graded as unsatisfactory level of knowledge (Less than 28 score).

Tool II - Patients' Quality of Life Scale: This is a condensed version of the 36, was designed to evaluate patients' quality of life. It was adapted from **(Batarfi et al., 2018)**. For patients' with KR, it is measured on a Likert-type scale with three domains: physical, psychological, and social. The scale has three possible answers: always, sometimes, and never.

1- The domain of physical health status was separated into four primary categories: one item for self-care, twelve items for activity and exercise, one item for sleep, and two items for dietary habits.

2- The psychological status domain was composed of ten items.

3- Six items were included in the social status domain.

Patient quality of life scale scoring system: The scoring system is graded according to the items of questionnaire. The scores were calculated as 2 score for never, one score for sometimes and zero score for always. For each area of quality of life the score was summed- up and multiply 2 by the total number of items, giving the mean score for the part. So, the total score is 62 score**.**

Tools validity:

A panel of five experts from Benha University's medical surgical nursing department, which included two professors and three assistant professors, evaluated the face and content validity for comprehensiveness, relevance, simplicity, clarity, and ambiguity. Additionally, the same specialists amended the produced recommendations that addressed every aspect of knee replacement surgery based on recent, current literature, and all suggested changes were implemented.

Tools reliability:

All of the research's instruments underwent statistical testing; the Cronbach's alpha test was used to measure the reliability of the structured interview questionnaire and quality of life, and the results were (alpha = 0.820, 0.860, respectively). This simply serves to demonstrate how dependable this tool is.

Ethical considerations:

With code number, the ethical committee of Benha University's Faculty of Nursing granted its clearance **(REC-MSN-P116)**. All patients were informed of the purpose of the research and given the assurance that all information would be kept private and utilized only for their benefit and the research's objectives. Every patient who took part in the trial gave their written consent. Patients were told that they could out of the research at any moment and that they could choose whether or not to participate.

Pilot study

10% (10 patients) in the orthopedic department at Benha University Hospital participated in the research to evaluate the tools' use and clarity. Based on the pilot study findings, no adjustments were necessary. Therefore, the research sample did not

exclude the patients who took part in the pilot trial. It was completed two weeks before the data was gathered.

Field work

Once authorization to gather the data was secured. The patients were interviewed by the researchers to explain the purpose of the research, to get their consent to participate and cooperate, and to reassure them that the information gathered would be kept private and utilized exclusively for the research. The current research's data collecting began in early June 2024 and ended in late November 2024.

The research was conducted through four phases:

1-Assessment phase (pre-test):

Following a brief explanation of the research's purpose to all participants in plain Arabic, the researchers conducted one-on-one interviews with each patient and evaluated their understanding, medical history, and personal information using the structured interview questionnaire **(Tool I).** Lastly, before implementing the evidence-based nursing guidelines, the researchers used **Tool II** to gather baseline data from the patients regarding their quality of life.

2-Planning phase:

- Following the completion of the initial examination, the guidelines were created with each person's needs in mind. The researchers created a lesson plan with both broad and focused goals.

The researchers created the guidelines after reviewing recent relevant literature and scientific sources **(Abdelbaki., 2019; Larry., 2019; Jain, 2023; West, 2023)** based on the patient's initial assessment needs as well. Its goal was to enhance patients' quality of life and understanding following knee replacement surgery. The researchers created and built the designed guidelines in the form of a booklet. All of the information regarding KR procedure was included in the booklet. It split into the following two sections:

The theoretical portion contained general information regarding KR surgery, such as its definition, causes and risk factors, significance, types, diagnosis, complications, and post-knee replacement surgery procedures.

Practical part; It sought to establish the foundation for nursing self-care recommendations to enhance patients' quality of life following KR surgery, including appropriate diet, exercise, medication, and follow-up.

- Teaching resources, such as booklets, printed materials, and PowerPoint presentations, were created to aid in the discussion of both theoretical and practical topics.

3-Implementation phase (The guidelines intervention):

-Three days a week (Saturday, Monday, and Wednesday) from 9 a.m. to 1 p.m., data was gathered from patients who had knee replacements. Four sessions were used to execute the guidelines. Each session was performed individually and lasted into thirty to forty-five minutes for each patient, and based on the interviewers' responses, an average of eight KR patients were interviewed each day. They gave an overview of the intervention and its steps. Before discussing the goals of the new topics and using straightforward language appropriate for each patient's educational level, each session began with a brief recap of the prior one.

- During the intervention sessions, learning was improved through discussion, feedback, and reinforcement. The researchers

gave patients the opportunity to ask questions at the conclusion of each session in order to clear up any misunderstandings.

The content of the sessions was divided as the following steps:

- **Session one (Theoretical session):** Definition of knee replacement, causes and risks, considerations, types, significance, diagnosis, directions, and complications following knee replacement surgery were all explained.
- **Session two** (Theoretical session): The patient was instructed on how to maintain a healthy diet following KR surgery.
- **Session three** (Practical session): In order to increase the patient's quality of life following KR surgery, it contained instructions on which exercises to perform and which to avoid.
- **Session four** (Practical session): It contained instructions on how to take medication and how to follow up with the patient on a regular basis following KR operation.

At the end of the evidence based guidelines: Based on the needs of the patients, the researchers made revisions and reinforcements.

- The sessions employed a variety of teaching and learning techniques, such as discussion, demonstration and re-demonstration, and instruction that was delivered in an understandable and succinct manner. Each patient under research received the program's colored booklet to aid in their review and to supplement instruction.

- To clear up any misunderstandings, the patients' questions were addressed and discussed. Additionally, the researchers distributed the post-test questionnaire after receiving notes from the patients, thanking them for their cooperation and asking about their thoughts on the guidelines and the advantages of the subject.

4-Evaluation phase:

Using the same data collection instruments, the following phases will be used to assess how evidence-based nursing guidelines affect patients' understanding and quality of life:

Phase1: After applying the evidence-based nursing guidelines preoperatively (after the teaching session), a post-test evaluation was conducted right away to assess the guidelines' effect on patients' understanding. Tool I was used to compare the changes in the patients' knowledge, Tools II was used to compare the pre and post data gathered for patients' quality of life.

Phase 2: Three and six months after surgery, a follow-up assessment of the patients' knowledge and quality of life was conducted using Tools I and II to compare the pre and post data gathered.

Results:

Table (1): Shows the demographic traits of the patient under research. The research found that 71% of the patients were married, 60% were female, and 49.0% of the patients were between the ages of 50 and 60, with a mean age of 49.13 ± 1.041 years. Regarding employment, 41% of the patients worked sedentary jobs, 44% had intermediate degrees, 56% resided in cities, and 40% occupied second or third floors.

Table (2): Most of the patients (78.0%) had been diagnosed with knee arthritis for 5–10 years, 36% had a positive family history of first-degree arthritis, 45.5% had a positive family history of knee arthritis, 53% had prior understanding of knee arthritis, 49.1% had information from their medical team, and

41% had knee replacement surgery, particularly partial replacement, which 97.6% of them reported was caused by their inability to perform daily activities.

Figure (1): Shows that the overall knowledge levels over the several research phases varied in a very statistically meaningful way. In contrast, 27% of the patients in the research had a satisfactory level of overall knowledge about knee replacement surgery prior to the adoption of the guidelines, and 88%, 85%, and 82% of them had a satisfactory level of knowledge immediately following, three months after, and six months after the guidelines were implemented.

Table (3): Demonstrates that all aspects of the patients' physical, psychological, and social well-being improved significantly after the nursing guidelines were implemented, with a highly significant difference at (P=< 0.001). The mean score was 51.38 ± 3.83 before the nursing guidelines were implemented, but it changed to 47.27 ± 4.27 and 31.92 ± 4.89 post three and six months of the guidelines' implementation.

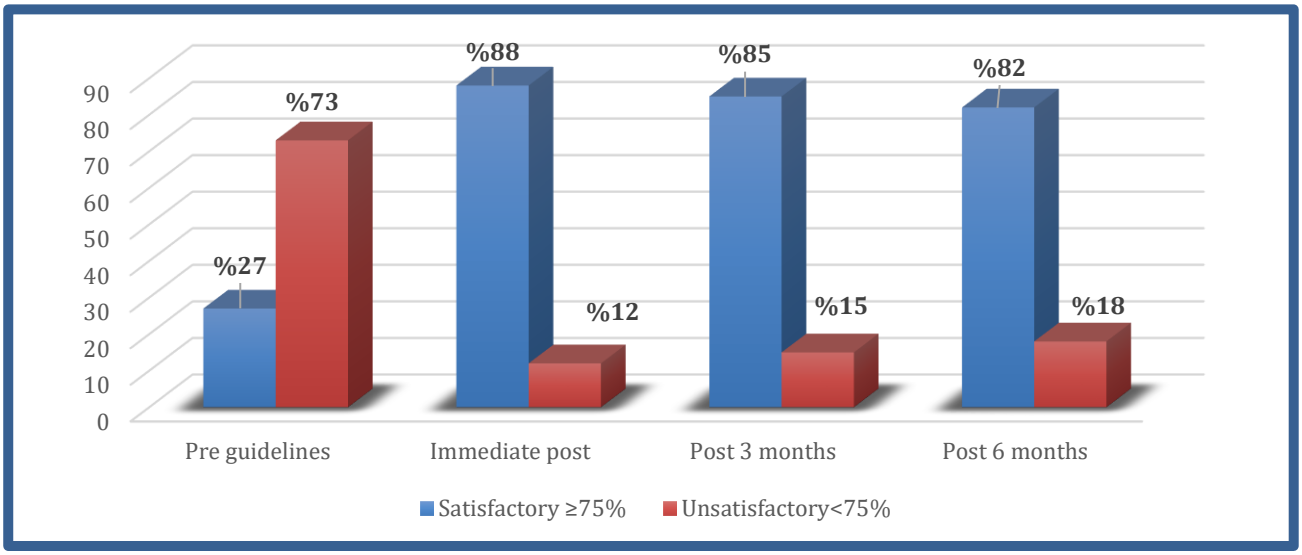
Table (4): Explains that, with p-values of 0.004*, 0.039*, and 0.007*, respectively, there was a negative and significant association between the total patients' understanding and their total quality of life score pre, post, and six months of the guidelines' adoption.

Table (1): Frequency distribution and percentage of the studied patients regarding to their personal data (n=100).

Patients' personal data	(No.)	%
Age (years)		
20- < 30	12	12.0
30- < 40	12	12.0
40- < 50	27	27.0
50 – 60	49	**49.0**
$\bar{\chi}$ ± **SD**	49.13 ± 1.041	
Gender		
Male	40	40.0
Female	60	**60.0**
Marital status		
Single	4	4.0
Married	71	**71.0**
Widowed	13	13.0
Divorced	12	12.0
Educational Level		
Can't read and write	11	11.0
Read and write	26	26.0
Intermediate qualification	44	**44.0**
High qualification	19	19.0
Occupation		
Sedentary work	41	**41.0**
Manual work	14	14.0
Not working	21	21.0
Housewife	24	24.0
Residence		
Urban	56	**56.0**
Rural	44	44.0
Floor where the patient lives		
Ground	33	33.0
Second or third floors	40	**40.0**
Upper floors	27	27.0

Table (2): Frequency distribution and percentage of the studied patients according to their medical history (n=100).

Patients' medical history	(No.)	%
Time since diagnosis with knee arthritis		
< 3 years	16	16.0
3-< 5 years	26	26.0
5-<10 years	36	**36.0**
≥10 years	22	22.0
Presence of family history with knee arthritis		
Yes	33	33.0
No	67	**67.0**
If yes, the degree of kinship (n=33)		
First degree	15	**45.5**
Second degree	11	33.3
Third degree	6	18.2
Fourth degree	1	3.0
Having previous information about knee arthritis		
Yes	53	**53.0**
No	47	47.0
If yes, the source of information is (n=53)		
Medical team	26	**49.1**
Internet	17	32.1
Radio and TV	6	11.3
Patients with similar medical problem	4	7.5
Had knee replacement		
Yes	41	41.0
No	59	**59.0**
If yes, the type of surgery is (n= 41)		
Total knee replacement	13	31.7
Partial knee replacement	14	**34.1**
Patellar replacement	7	17.1
Total Composite Replacement of Knees	7	17.1
Causes of knee replacement surgery (n= 41) #		
Severe pain in the knee joint	22	53.6
Stiffness in the joint	19	46.4
Having difficulty walking	19	46.4
Inability to do normal daily activities	40	**97.6**
Previous incidence of complications post knee replacement surgery (n= 41)		
Yes	20	48.8
No	41	**51.2**
If yes, the complications occurred (n=20)		
Bleeding at the site of surgery	4	20.0
Occurrence of blood clots in the legs	3	15.0
Inflammation at the site of surgery	7	**35.0**
Wound infection	6	30.0



(1) Difference between understanding pre and immediately post nursing guidelines implementation
(2) Difference between understanding pre and 3 months post nursing guidelines implementation
(3) Difference between understanding pre and 6 months post nursing guidelines implementation

Figure (1): Comparison between the studied patients ' total knowledge about knee replacement surgery throughout research phases (n=100)

Table (3): Comparison between the total mean score of the studied patients ' quality of life throughout research phases (n=100).

Quality of life dimensions	Max score	Pre-nursing guidelines (n=100) Mean ± SD	% of mean	3months Post nursing guidelines (n=100) Mean ± SD	% of mean	6 months Post nursing guidelines (n=100) Mean ± SD	% of mean	t test P value (1)	t test P value (2)
Physical health status	32	25.61 ± 2.82	80.0%	23.17± 3.09	72.4%	15.38 ± 3.38	48.0%	- 30.257 (<0.001**)	- 23.093 (<0.001**)
Psychological status	18	15.57 ± 1.67	86.5%	14.62 ± 1.98	81.2%	11.21 ± 2.24	62.2%	- 24.062 (<0.001**)	- 15.021 (<0.001**)
Social status	12	10.20 ± 1.48	85.0%	9.48 ± 1.78	79.0%	5.33 ± 1.78	44.4%	- 24.310 (<0.001**)	- 18.453 (<0.001**)
Total	62	51.38 ± 3.83	-	47.27 ± 4.27	-	31.92 ± 4.89	-	- 43.951 (<0.001**)	- 31.883 (<0.001**)

(1) Difference between total quality of life pre and 3 months post nursing guidelines implementation
(2) Difference between total quality of life pre and 6 months post nursing guidelines implementation

Table (4): Correlation between total knowledge with quality of life scores among the studied patients pre, post 3 and 6 months periods of nursing guidelines implementation (n=100)

	Research periods	Total knowledge score	
		R	P value
Total quality of life score	Pre nursing guidelines	-0.288	0.004*
	Post 3 months of nursing guidelines	-0.207	0.039*
	Post 6 months of nursing guidelines	-0.266	0.007*

Discussion

In situations with end-stage osteoarthritis (OA), knee replacement (KR) surgery, also called knee arthroplasty (KA), remains the gold standard surgical treatment by replacing the worn-out surfaces of the knee joint with a prosthetic device that does the same functions as the knee. It restores joint function and quality of life by enhancing joint mobility and stability and repairing deformed joints **(Sun et al., 2021).**

In terms of age, the current research found that, with a mean age of 49.13 ± 1.041 years, less than half of the patients were between the ages of 50 and 60. According to the researchers, this is because aging-related changes in the musculoskeletal system increase a person's risk of developing osteoarthritis, which is thought to be the primary reason for knee replacement surgery.

The majority of the research cohort and more than half of the control cohort were between the ages of 51 and 60, according to **Taha & Ibrahim (2021)** research, "Effect of Educational Program on Nurses' Understanding, Practices and Patients' Outcomes Post Total Knee Arthroplasty.

The mean age of the research cohort was 68.3 years, according to **Siviero et al. (2020),** who conducted a research titled "Quality of life outcomes in patients undergoing knee replacement surgery: longitudinal findings from the QPro-Gin research.

In terms of gender, the current research's findings showed that fewer than two-thirds were female. These results might be the result of osteoporotic alterations that women experience following menopause as a result of differences in anatomical features, hereditary problems, and hormonal impacts **(Lu et al., 2021).**

Rittharomya et al. (2020) found that women comprised the "majority of both cohorts" in their research on "The Effectiveness of Preoperative Quadriceps Exercise and Diet Control Program for Older Adults Waiting for Total Knee Arthroplasty." Furthermore, approximately half of the participants in **Zhang et al. (2022)** research, "The Effect of preoperative rehabilitation training on the early recovery of joint function after artificial total knee arthroplasty and its effect evaluation," were female.

However, **Sun et al. (2021)** deviated from this conclusion in their research, "Effect of

perioperative nursing for artificial knee replacement on patients with osteosarcoma of the distal femur," which revealed that three-quarters of the sample consisted of men.

According to the current research, fewer than three-quarters of the patients under investigation were married. According to the research, osteoarthritis is the most common reason for knee replacement surgery and is more common in married people because of ageing, weight gain, changes in lifestyle, and a decrease in physical activity. These results concurred with those of a research on the "Quality of Life for Patients after Total Knee Replacement Surgery" **by Mandour et al. (2022),** which found that almost two-thirds of the sample were married.

The results of the current investigation revealed that less than half of the patients had intermediate levels of education. According to the researchers, the nature of work—such as working in physically demanding occupations like construction and agriculture—as well as a lack of understanding about the significance of healthy eating, exercise, and maintaining a healthy weight, early treatment options, and lower income can limit people's ability to take care of their health, including regular doctor's appointments, physical therapy, and maintaining a balanced diet, making people with a moderate level of education more vulnerable to knee replacements and arthritis.

In their research "Effect of application cold compresses on range of motion, activity daily living and pain control among patients with total knee replacement," **Bazied et al. (2022)** found that the majority of research and control subjects had a secondary education, which supports this finding.

The current investigation found that fewer than half of the patients worked in sedentary jobs. According to the researchers, people who perform sedentary jobs are more likely to develop osteoarthritis and need knee replacements because of their poor blood circulation, weight gain, muscular weakening, and bad movement patterns. **Wettrholm et al., (2020)** research, "The rate of joint replacement in osteoarthritis depends on the patient's socioeconomic status," supports these findings by showing that less than two-fifths of patients had sedentary jobs.

In contrast to this finding, **Xing et al. (2020)** observed that over half of participants in their research on "Factors influencing selfcare in outpatients with Knee Arthroplasty in China" worked in physically demanding jobs.

Less than half of the patients lived on the second or third level, and over half of them were found to reside in metropolitan regions. According to the researchers, frequent stair climbing and descending are major variables that raise a person's risk of developing knee osteoarthritis because they cause repetitive mechanical stress, inflammation, and higher knee joint load.

Approximately one-third of the sample resided on the second floor, according to **Clement et al.'s (2023)** research on "Factors associated with a clinically significant improvement in health-related quality of life after total knee arthroplasty.

Furthermore, **Hawker et al. (2019)** reported in their research titled "Health-Related Quality of Life after knee replacement" that this conclusion was in disagreement with. About half of the sample resided on the first level, according to the findings of the knee replacement patient outcomes.

Based on the patients' medical histories, the current research's findings showed that over one-third of the patients had been diagnosed with knee arthritis for five to ten years. According to the research, this is

because of the increasing joint abnormalities, greater discomfort, failure of conservative treatments, and progressive cartilage deterioration. Therefore, the best course of action for regaining mobility and enhancing quality of life is surgery.

These results align with **Taha & Ibrahim's (2021)** findings. They discovered that knee problems that had persisted for more than a decade affected two-fifths of the research and control cohorts.

In terms of family history, one-third of the patients in the research had a positive first-degree family history, and nearly half of them had no family history of knee arthritis. Additionally, a research on the "Quality of Life among patients with Knee Replacement" by **Abdelhafeez et al. (2022)** revealed that over half of the sample had a first-degree positive family history of arthritis.

It was found that fewer than half of patients underwent knee replacement surgery, particularly partial replacement, with over one-third of patients stating that their incapacity to do day-to-day activities was the reason for the procedure. According to the researchers, this result may be because, in patients when non-operative treatments are unsuccessful, knee replacement surgery is typically seen as the only viable treatment for severe knee arthritis. These findings are consistent with a research by **Fawzy et al. (2020)** on the "Biopsychosocial needs of patients undergoing total knee replacement," which found that around three-quarters of the patients were candidates for the TKR because of osteoarthritis in their knees.

Regarding prior incidence of complications, the current research's findings showed that almost half of patients had experienced complications following knee replacement surgery, with inflammation at the surgical site accounting for the majority of these complications, affecting over one-third of patients. In contrast, **Al-Otaibi (2021)** found that there was a rate of complications following knee replacement surgery in their research, "Total knee replacement at Southwestern Saudi Arabia: A single-center experience." Among our patients, superficial infections were the most frequent sequelae.

As regards to total mean score of knowledge regarding knee replacement, the current study's findings showed a highly statistically significant variation in the patients' overall mean level of knowledge over the course of the study. The majority of the patients in the study had healthy habits, such as eating a balanced diet after knee replacement surgery, because basic patients' knowledge of knee joints had the highest mean percentage score post six months. These finding supported research hypothesis (H1) which states that: The mean score of patients' knowledge would be significantly higher post implementing nursing guidelines.

This result was consistent with a research by **Hashizaki et al. (2023)** on the "Effectiveness of a 3-week rehabilitation program combining muscle strengthening and endurance exercises prior to total knee arthroplasty." The research found that the fair understanding level had improved one month after the program was implemented and three months after the surgery. The research and control cohorts' understanding levels after surgery, two weeks later, and one and a half months later differed significantly (p values of 0.001**).

Regarding the overall mean score of quality of life, the current research demonstrated that, when compared to before the nursing guidelines were implemented; there was a highly statistically significant improvement in all aspects of quality of life regarding the physical, psychological, and

social status of the patients under research. According to the researchers, this result shows that patient outcomes can be influenced by evidence-based nursing standards and that there are areas where quality of life can be improved, especially after surgery.

These finding of the study supported research hypothesis (H2) which states that: The mean score of Patients' quality of life would be significantly higher post implementing nursing guidelines.

These results were consistent with a research by **Dong et al. (2023)** on "Evidence-based nursing reduces complications and negative emotions and improves limb function in patients undergoing knee arthroplasty," which revealed that both cohorts experienced a significant reduction in negative emotions following nursing intervention.

Regarding the correlation between the total number of patients' knowledge and their total quality of life scores both before and after the nursing guidelines were implemented, the current research found a negative and significant correlation between the two variables throughout the research periods of the guidelines' implementation, with a p-value of 0.05. These research results are consistent with research hypothesis (H3) which states that: there would be a significant correlation between patients' knowledge and their quality of life.

According to the researchers, this could be because individuals who possess greater information tend to be more cognizant of their illness, its limitations, and any potential repercussions. Their sense of quality of life may be negatively impacted by this heightened awareness, which may cause them to feel anxious, afraid, or stressed about their recuperation and long-term health. Conversely, patients who know less about their health might be less worried and, as a result, have a more positive view of their quality of life.

These findings concur with those of **Huang et al. (2021),** who found a negative correlation between understanding and quality of life in their research "Exploring the relationship between understanding and quality of life in participants with medial knee osteoarthritis: cross-sectional research.

Conclusion

The research's findings led to the following conclusion: Following nursing guidelines based on evidence has been demonstrated to be effective in improving the knowledge of the patients under research as well as all aspects of their physical, psychological, and social status in relation to their quality of life. Following three and six months of nursing guidelines, there were significant negative correlation between their patients' overall quality of life and their entire knowledge at $p \leq 0.05$ and r = (-0,20, -0,26, respectively). Additionally, the research hypotheses were supported by the research data.

Recommendations

- Nursing guidelines for post-knee replacement care should be continuously developed and updated, with a focus on patient education and early rehabilitation.
- Patients undergoing KR surgery should have regular follow-up to guarantee its efficacy and prevent complications.
- To guarantee the delivery of high-quality, evidence-based care, more research on the relationship between nurse interventions and patient ' quality of life following knee replacement surgery is encouraged.
- A bigger sample size should be used in future research to evaluate patient' quality of life in order to make generalizations.

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الارشادات التمريضية المبنية علي الأدلة وجودة حياة المرضي بعد جراحة استبدال مفصل الركبة

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جراحة استبدال مفصل الركبة، والتي تُعرف أيضًا (بجراحة مفصل الركبة الاصطناعي) هي عملية جراحية يتم من خلالها استبدال مفصل الركبة التالف بمفصل صناعي. وتُستخدم هذه الجراحة لعلاج الألم المزمن في الركبة وفقدان وظيفتها، الناتجين عن عدد من المشكلات المرضية في الركبة. غالبًا ما تُجرى هذه العملية للأشخاص الذين يعانون من الفُصال العظمي (خشونة الركبة)، لكنها تُستخدم أيضًا في حالات التهاب المفاصل الروماتويدي، والكسور، والأورام، وقد تم استخدام تصميم شبه تجريبي (قبل-بعد) في إجراء هذه الدراسة، وقد أجريت الدراسة في قسم العظام التابع لقسم الجراحة في مستشفى جامعة بنها، وقد شملت الدراسة على عينة ملائمة مكونة من ١٠٠ مريض بالغ من كلا الجنسين ممن خضعوا لجراحة استبدال مفصل الركبة خلال فترة جمع البيانات ووافقوا على المشاركة في الدراسة. و قد أسفرت النتائج على أن تم تشخيص ٣٦٪ من المرضى بالتهاب مفاصل الركبة لمدة تتراوح بين ٥-١٠ سنوات، و٣٣٪ لديهم تاريخ عائلي للإصابة من الدرجة الاولي بين ٤٥,٥٪ منهم. بالإضافة إلى ذلك، خضع ٤١٪ من المرضى لجراحة استبدال الركبة، وأفاد ٩٧,٦٪ أن سبب الجراحة كان عدم القدرة على القيام بالأنشطة اليومية. بينما تعرض ٤٨,٨٪ منهم لمضاعفات بعد الجراحة، وكانت أكثر المضاعفات شيوعًا. كان هناك أيضا تحسنًا كبيرًا في مستوى معرفة المرضى بعد تطبيق الإرشادات التمريضية من ذي قبل، كما لوحظ تحسن كبير في جودة الحياة لدى المرضى في جميع الجوانب (الجسدية، النفسية، والاجتماعية)، حيث تحسن الجانب النفسي أكثر من غيره، يليه الجانب الجسدي.، كانت هناك ارتباط ذو دلالة إحصائية بين المستوى التعليمي للمرضى ومستوى معرفتهم في جميع مراحل الدراسة. كذلك، وُجد فرق واضح بين المعرفة الطبية للمرضى حسب تاريخ تشخيص التهاب المفاصل ووجود مضاعفات بعد الجراحة.، وأيضا جودة الحياة للمرضي، فكانت مرتبطة بالمستوى التعليمي لكنها لم تتأثر بالتاريخ الطبي للمرضى باستثناء مرحلة ما قبل تطبيق الإرشادات. وقد أوصت الدراسة علي تطوير وتحديث الإرشادات التمريضية لرعاية ما بعد جراحة استبدال مفصل الركبة مع التركيز على تثقيف المرضى والتأهيل المبكر.