

Nurses' Performance and Self Care Practices Regarding Discharge Plan for Patients Post Total Knee Arthroplasty

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Abstract:

Background: Total knee arthroplasty (TKA) remains the gold standard treatment of end stage arthritis with high success and patient satisfaction rates.

The aim of this study was to evaluate nurses' performance and self-care practices regarding discharge plan for patient post total knee arthroplasty.

Research design: A descriptive research design was used.

Setting: This study was conducted at orthopedic department of new surgery hospital at Zagazig University hospitals, Sharqia Governate, Egypt.

Subjects: A convenient sample of available nurses (46) and purposive sample of 40 patients were selected from the mentioned setting.

Tools: five tools were utilized for data collection, pertinent as follows: Self-Administered Questionnaire for Nurses, observational checklist for Nurses, Interviewing Questionnaire for Patients, Numeric Pain Scale and Patient Self-Reported Questionnaire regarding Self-Care Practices.

Results: Revealed that, less than two thirds (63%) of the studied nurses had unsatisfactory knowledge regarding total knee arthroplasty. More than half (56.5%) of the studied nurses had inadequate total practice scores regarding discharge plan of the patient undergoing total knee arthroplasty, majority (82.5%) of studied patients had unsatisfactory knowledge regarding discharge plan post total knee arthroplasty. More than half (52.5%) of the studied patients had severe pain while, less than one fifth (12.5%) had mild and moderate pain. More than half (55.0%) of the studied patients need of assistance concerning total ability to perform ADLs. While, nearly two fifth (20.0%) of patients completely dependent and independent respectively. more than three quarters (77.5%) of patients had inadequate total self-care practices scores post total knee arthroplasty.

Conclusion: There was a positive correlation coefficient between total patients' knowledge and total self-care practices of the patients. There was a positive correlation between total patients' knowledge and total ability to perform of activities of daily living. There was a highly significant correlation between total knowledge score and total practice score regarding total knee arthroplasty among the studied nurses. There was a highly significant correlation between total nurses' knowledge and practice score and total self-care practices of the patients.

Recommendations: Future studies should be done to evaluate the effect of discharge plan on self-care practices for patients post TKA.

Key words: Discharge Plan ,Nurses' Performance, Self Care Practices, and Total Knee Arthroplasty.

Introduction

A TKA is a common surgical procedure used to replace the damaged surfaces of the knee joint with an artificial knee joint (prosthesis) made of ceramic and plastic or metal and plastic for people with post-traumatic arthritis, rheumatoid arthritis, and advanced osteoarthritis (**Taha & Ibrahim., 2021.,**).

Knee replacement surgery is best suited for patients with end-stage arthritis of any etiology who have tried every conservative treatment option. One of the most common degenerative musculoskeletal conditions is OA. The articular cartilage at the cartilage ends of the bones, including the femoral, tibial, and patella cartilages, irreversibly degenerates in OA, which most commonly affects the knee (**Yeoh, et al., 2021**).

Discharge planning is the process of moving a patient from one level of medical care to the next; ideally, discharge plans are personalized instructions given to the patient when they leave the hospital and go home, or to the healthcare providers they will see after moving to a longer-term care facility (**Gheno& Weis., 2021**).

One of the most important aspects of post-operative care is efficient discharge planning. In order to minimize problems and prevent readmission to the hospital, it entails evaluating the patient's needs, teaching them about their illness, and getting them ready for home-based treatment. It has been demonstrated that a well-organized discharge plan increases patient satisfaction and treatment compliance (**Vashi et al., 2016**).

Self-care is defined as the individual's ability to maintain health and manage illness independently. In the context of TKA, self-care includes medication

adherence, physical therapy participation, and monitoring for signs of infection (**Riegel et al., 2021**).The patient's knowledge, motivation, and the quality of discharge education received greatly influence their self-care behavior (**Park et al., 2018**)

Self-care in post-operative contexts is defined as the patient's ability to independently manage health-related activities that support recovery, prevent complications, and maintain functional stability after surgery. It includes both routine care and responses to potential health deviations. In the context of TKA, self-care is essential for regaining mobility, reducing pain, and avoiding post-operative complications. Patients are expected to engage in a variety of self-care activities such as wound care, pain management, adherence to prescribed medications, using assistive devices for mobility, and participation in physiotherapy programs (**Gholami et al., 2021**). These tasks require not only physical ability but also an understanding of the post-surgical regimen.

Nurses, have a vital role to play in assessing and identifying patients' needs in general and their discharge needs in particular. This helps patients cope with their current condition and prepares them for discharge so they can safely resume activities and manage their care at home. Planning for hospital discharge is a fundamental nursing task. The foundation for effective self-management of recuperation at home is laid by making sure that patients' discharge requirements have been satisfied before they are released from the hospital (**Martinsen, Delima and Rudolph., 2023**).

Significance of the study:

Total Knee Arthroplasty (TKA) is a common orthopedic procedure aimed at restoring joint function and relieving pain in patients with advanced knee joint disease. Effective discharge planning following TKA is crucial to ensure optimal recovery, reduce readmission rates, and improve overall patient outcomes. Nurses play a pivotal role in discharge education by providing patients with essential instructions on medication, wound care, mobility, and rehabilitation (**Gholami et al., 2021**). Their performance in this area significantly influences how well patients adhere to self-care practices at home.

Operational Definition

1. Discharge Plan:

In this study, the discharge plan refers to a structured set of interventions and educational activities to prepare patients for a safe transition from hospital to home following Total Knee Arthroplasty (TKA). It includes patient education on medication, pain management, wound care, mobility, rehabilitation exercises, and follow-up appointments, tailored to the individual's condition and needs Measured by: A checklist evaluating the completeness and clarity of nurse-delivered discharge instructions.

2. Self-Care Practice:

In this study, self-care practice refers to the ability of patients who underwent TKA to independently perform post-discharge health-related activities that support recovery. These include Adherence to taking medication, sitting and sleep, walking, climbing and going down the stairs, sit and standing on toilet, exercises and prevent possible complications. Measured by: An interviewing -reported questionnaire.

3. Nurses' Performance:

Nurses' performance refers to the effectiveness and efficiency with which nurses carry out their professional duties and responsibilities in delivering patient care. It encompasses their clinical skills, decision-making abilities, communication, adherence to ethical standards, and the application of knowledge in practice to promote health, prevent illness, and care for patients.

Aim of the study:

The aim of this study was to evaluate nurses' performance and self-care practices regarding discharge plan for patient post total knee arthroplasty. **This aim was achieved through the following objectives:**

- 1- Assess nurses' knowledge and practice regarding discharge plan for patient post total knee arthroplasty.
- 2- Assess patients' knowledge and self-care practices regarding discharge plan post total knee arthroplasty.

Research Questions:

- 1- What is the level of nurse's knowledge regarding discharge plan for patient post total knee arthroplasty?
- 2- What is the level of nurses' practice regarding discharge plan for patient post total knee arthroplasty?

Subjects and Methods:

Research design:

This study used a descriptive design was utilized to accomplish the aim of this study and to answer the research questions

Setting:

This study was conducted at orthopedic department of new surgery hospital at Zagazig university hospitals, Sharqia governate, Egypt. Orthopedic department are located on the six floor of new surgery hospital. The department Which contains a men's ward and a women's ward, both of which include about 97 beds for patients. In which comprehensive care was provided to the patient, including wound care, pain relief, giving instructions for the procedure after the operation, and helping the patient to move early and avoid complications.

Subjects:

The study involved convenient sample of available nurses (46) working at orthopedic department of new surgery hospital at Zagazig University hospital and purposive sample of 40 patients who fulfilling the inclusion criteria.

Tools of data collection:

Five tools were used to collect necessary data.

Tool I: Self-Administered Questionnaire for nurses included two parts as follows:

First part: Nurses' demographic characteristics: involved personal data related to nurses contained nine questions included (age, gender, marital status, educational qualifications, residence, income, years of experience in the nursing filed, experience years in orthopedic department and previous training courses regarding discharge plan for patient post total knee arthroplasty.

Second part: Nurses' knowledge Assessment Questionnaire: This part was used to assess nurse's knowledge regarding TKA the questionnaire contained 122 items, divided into 12 subscales (anatomy and physiological function subscale which consisted of eight items in the form of true and false questions ,definition and indications of total knee arthroplasty subscale which consisted of four items items in the form of true and false questions, general knowledge about total knee arthroplasty which contain 13 items in the form of true and false questions , pain and leg swelling which involve six items in the form of mcq questions, wound care which contain 11 items in the form of mcq questions, care of the drain which involve 28 items in the form of true and false and mcq questions, post-operative complications subscale which consisted of eight items in the form of true and false questions, medications about total knee arthroplasty which contain 10 items in the form of true and false questions, follow-up and activities which involve 10 items in the form of true and false questions, nutrition which contain six items in the form of true and false questions, environment which involve nine items and exercise which contain nine items in the form of true and false questions.it was adapted from(*El sayed Mahedy .,et al, 2021, Elsayed, et al, 2023, Kaur, et al, 2022, Piyakhachornrot, & Youngcharoen, 2024, Mahmoud, et al, 2024 , Han, & Liu, 2024, Lu, et al, 2024).*

The scoring system for Nurse's knowledge regarding total knee arthroplasty: The questionnaire used a 2-point scale that ranges from 1 "correct answer", zero "incorrect answer". the total score is 122 grades. these scores were summed and converted into a percent score. it was classified into 2 categories: satisfactory if score $\geq 80\%$. (98-122 grades)and unsatisfactory if score from $<80\%$. (0-97 grades). Based on statistical analysis.

Tool II: Observational Checklist for Nurses:

It was used to assess nurses' practice regarding discharge plan of the patient undergoing TKA .The scale contained 115 items in the form of done or not done questions, divided into seven subscales (pain management subscale which consisted of 22 items, wound care subscale which consisted of 36 items, drain care which contain 17 items, cold therapy which involve 21 items, DVT which contain eight items, constipation which involve six items and swelling which contain five items. (*Perry et al., 2014 , Nursing Department. 2018, Jani, & Marsicano, 2018 ,Lavery, J. 2021, El sayed Mahedy et al, 2021, Missoula Bone and Joint, 2020*).

Scoring system for Nurse's practice regarding discharge plan of the patient undergoing TKA:

The scale using a 2-point scale that ranges from 1 "done", zero "not done". The total score is 115 grades. These scores were summed and converted into a percent score. It was classified into 2 categories: adequate if score $\geq 80\%$. (92-115 grades) and Inadequate if score from $<80\%$. (0-91 grades). Based on statistical analysis.

Tool III: An Interviewing Questionnaire for patients (Appendix III): it was developed by the researchers based on the recent literature and translated into Arabic language. It included the following three parts:

Part I. Demographic characteristics of patients' post knee joint replacement which included ten questions regarding (age, gender, marital status ,place of residence, living satus ,home care giver, receiving information about care post TKA ,educational level and occupation).

Part II. Medical history of patients' post TKA, included 14 questions related to BMI, medical diagnosis, symptoms, How long time patient suffering from symptoms,using assistive device, exercise, smoking, type of knee replacement, cortisone intake (history of cortisone intake or current cortisone intake), and family history. It was adapted from (*Kaur et al., 2022*)

Part III. Patient knowledge assessment questionnaire: it was used to assess patients knowledge regarding discharge plan for patient post TKA The questionnaire contained 38 items in the form of true or false questions, divided into six subscales (discharge planning in general subscale which consisted of six items, medications subscale which consisted of nine items, follow up and activities which contain five items, exercise which involve nine items, and complications which contain four items.it was adapted from (*El sayed Mahedy., et al, 2021, Kaur, et al, 2022, Elsayed, et al, 2023, Piyakhachornrot, Youngcharoen, 2024, Han, & Liu, 2024*)

Scoring system for Patient's knowledge regarding discharge plan post total knee arthroplasty:

The questionnaire using a 2-point scale that ranges from 1 "correct answer", zero "incorrect answer or don't know". The total score is 38 grades. These scores were summed and converted into a percent score. It was classified into two categories satisfactory if score $\geq 60\%$. (23-38 grades) and unsatisfactory if score from $<60\%$. (0-22 grades). Based on statistical analysis.

Tool IV: Numeric of pain scale(Appendix IV) : Used a numerical pain rating scale, to assess the pain (NPRS), NRS measures pain on a scale of zero to 10. (Zero mean no pain, five moderate pain and 10 mean worst possible).it was adopted from (*Cheng et al., 2018*)

NPRS Scoring System

The NPRS usually consists of integers from zero to 10, with each number having a different meaning in describing the level of pain. Here is a general interpretation of the numbers in the Numeric Pain Rating Scale:

Zero (No pain), one to three (mild pain), four to six (moderate pain), seven to nine (sever pain) and ten (very sever or worst pain ever experienced).

Tool V: Patient Self-reported Questionnaire regarding self-care Practices(Appendix V): used to assess self-care practices regarding activities of daily living of the patients with total knee arthroplasty: It included two parts which are barthel index of activities of daily living and self-care practices for total knee arthroplasty patients.

Part I. Barthel Index of Activities of Daily Living Scale: which included ten questions used to assess patient ability for (nutrition, urination, bathing climbing stairs,transfers,toilting, clothing, mobility, output and personal hygiene. It was adapted from (*El sayed Mahedy .,et al, 2021*).

Scoring System of Barthel Index of Activities of Daily Living (ADL)

The Barthel Index measures a person's ability to perform 10 basic activities of daily living (ADLs) independently. Each activity is assigned a specific number of points based on the level of assistance required. The scores responses for every item were as follows: completely dependent scored zero, Need assistant scored one and independent scored two. The total scores of independency level ranged from zero -20, it categorized as the following: (zero to six) was considered "completely dependent", (seven to 13) was considered "need assistance" and (14 to 20) was considered "independent".

Part II. Self-care practices for TKA patients which included 56 items in the form of done or not done question, divided into eight subscales (Adherence to taking medication subscale which consisted of three items, Symptoms and management subscale which consisted of five items, Sitting and sleep which contain six items, Walking which involve 13 items, Climbing and going down the stairs which contain seven items, Sit and standing on toilet which involve seven items, exercises which contain seven items and Prevent possible complications which involve eight items. It was adapted from (AAOS,2021, Myoclinic 2021 ,Gupta, 2022).

Scoring system for Patient's practice regarding self-care practices for TKA patients:

The scale using a 2-point scale that ranges from 1 "done", zero "not done". The total score is 55 grades. These scores were summed and converted into a percent score. It was classified into 2 categories: Adequate if score $\geq 60\%$. (33-56 grades)
And Inadequate if score from $<60\%$. (0-32 grades). Based on statistical analysis.

Tools validity& Reliability:

It was used to modify the tools to determine whether the tools covered the aim or not. It ascertained by A five-member jury of experts, including three assistant professors of medical surgical nursing, a surgeon, and a physiotherapist) who were reviewed the tools for clarity, relevance, comprehensiveness, applicability, and understanding. According to the expertise's modifications and the results of the pilot study, some modifications were applied in the form of rephrasing or rewording, and sometimes changing of some questions. The final form had been drawn.

The reliability of tools was tested by the internal consistency method. Cronbach's alpha reliability coefficient was found to be 0.878 and 0.896 respectively for nurses' knowledge and practice. Reliability testing was conducted before data collection began. Cronbach's alpha reliability coefficient was found to be 0.792, 0.705 and 0.811 respectively for patient's knowledge assessment questionnaire, Self-care practices and barthel index scale of activities of daily living.

Field work:

A letter was delivered by the dean of the faculty of nursing to the head of the orthopedic department, requesting the required agreement to carry out the current study. Once permission to continue the study was obtained, the researcher began data collection. Initially the patients were interviewed by the researcher to initiate a line of communication. Data collection was carried out over a period of ten months, from April 2023 to the end of january 2024. Each patient was interviewed individually during the study period two days (Saturday and Tuesday) per week in two shifts at morning and afternoon shift. The researcher gave patients her phone numbers and contacted with them through Whats App and other social media to answer any questions, illustrate any misinformation.

Each nurse was met individually, got a full explanation about the aim of the study and was invited to participate. The nurse who gave his/her verbal informed consent to participate was handed the self-administered questionnaire and was instructed during the filling. The data were collected two days a week (Saturday and Tuesday) in the morning and afternoon shifts, the time used for finishing the self- administered questionnaire ranged between 20-30 minutes for each nurse according to nurses' physical and mental readiness and for nurses practice, also the researcher was observing nurses' practical skills about studied procedures. The time needed to complete the checklist varies ranged between one to two hours or according to type of surgery.

Pilot study:

A pilot study was carried out on four patients and four nurses (10%) of the total study sample to test whether the tools are clear, understandable, feasible, applicable, and time consuming. Necessary modifications were made according to the pilot study results. Pilot subjects were later excluded from the main study sample.

Administrative and ethical consideration:

The necessary approvals were obtained from the dean of the Faculty of Nursing and submitted to general director of Zagazig University Hospitals. Then Permission to carry out the study was obtained from the head of mentioned setting after explaining the purpose of the study.

At the initial interview, each potential subject was informed about the nature, purpose, benefits of the study, and informed that his/her participation is voluntary. Confidentiality and anonymity of the subjects were also assured through coding of all data. The researcher assured that the data collected, and information will be confidential and would be used only to improve their health and for the purpose of the study and there was no risk for study subject during application of the research.

In addition, an informed consent was obtained from each participant prior to inclusion into the study and after a full explanation of its aim and procedures. They were informed about their rights to refuse or withdraw from the study at any time with no reason to be given or consequences. **Ethical code:** M.D.Zu.R/182/13 /6/2023.

Statistical analysis:

The statistical analysis of data was done by using the computer software of Microsoft Excel Program and Statistical Package for Social Science (SPSS) version 25. Data were presented using descriptive statistics in the form of frequencies and percentage for categorical data, the mean ($\bar{X}$) and standard deviation (SD) for quantitative data. Qualitative variables were compared using chi square test (χ^2), P-value to test association between two variables and Pearson correlation test (R- test) to the correlation between the study variables. A significant level value was considered when $p < 0.05$ and a highly significant level value was considered when $p < 0.01$. Not significant level value was considered when $p \geq 0.05$.

Results:

Table1: Shows that, more than half (58.7%) of the studied nurses fall within 30 -40 age range with mean $\pm$ SD(32.39 $\pm$ 6.22). Regarding gender, all (100%) of the studied nurses were females .Majority (87.0%, 87.0, and 89.1%) of the studied nurses were from rural areas, married, and had insufficient income, respectively.

Regarding educational qualification, less than three quarters (73.9%) of the studied nurses had technical Institute degree and not attending a training course on total knee arthroplasty. While more than one fifth (15.2%) of them had bachelor of nursing. Concerning experience, more than half (56.5% and 54.3%) of the studied nurses had (≥ 10) years experience in nursing generally and (5- 10) years in orthopedic department with mean $\pm$ S.D (10.21 $\pm$ 5.38 & 6.36 $\pm$ 3.74) respectively.

Table 2: Shows that, more than three fifth of the studied nurses (60.9%, 63.0% and 63.0%) had unsatisfactory knowledge scores regarding to anatomy and physiological function of knee joint, definition and

Indications of total knee arthroplasty and general information about total knee arthroplasty, respectively. Regarding post-operative care nearly two thirds of studied nurses (65.2%) had unsatisfactory knowledge regarding Pain and leg swelling. Also less than two thirds of the studied nurses (63.0%, and 60.9%) had unsatisfactory knowledge scores regarding wound care and complications for total knee arthroplasty patient and most of studied nurses (93.0%) had unsatisfactory knowledge regarding care of the drain.

Also, the same table reveals that regarding discharge plan Less than three quarters (71.7%) of studied nurses had unsatisfactory knowledge regarding medications and more than half (54.3%) of studied nurses had unsatisfactory knowledge regarding follow-up and activities. less than two thirds (63.0%, 60.9%, and 63.0%) of studied nurses had unsatisfactory knowledge regarding nutrition, environment and exercise, respectively.

Finally, regarding total knowledge of studied nurses less than two thirds (63%) of the studied nurses had unsatisfactory knowledge regarding total knee arthroplasty. While, only more than one third (37%) of them had satisfactory knowledge indicating that those nurses had adequate understanding.

Table 3: Shows that, more than half (56.5%, 58.7, and 56.5%) of the studied nurses had inadequate practice regarding Pain management, wound care and drain Care with a mean $\pm$ SD of 15.26 $\pm$ 2.71, 23.17 $\pm$ 5.28 and 11.84 $\pm$ 2.12 , respectively. As well as, less than two thirds (60.9%) of the studied nurses had inadequate practice regarding cold therapy. with a mean $\pm$ SD of 14.06 $\pm$ 2.96.

Also, the same table reveals that less than two thirds (63.0%) of the studied nurses had inadequate practice regarding deep venous thrombosis with a mean $\pm$ SD of 5.54 $\pm$ 1.36. Finally, more than half (56.5%) of the studied nurses had inadequate total practice score regarding discharge plan for the patient undergoing total knee arthroplasty with a mean $\pm$ SD of 77.19 $\pm$ 15.05.

Table 4: Reveals that, there was a highly significant correlation coefficient between total knowledge score and total practice score regarding total knee arthroplasty among the studied nurses ($r = 0.873$ at $p < 0.000$). discharge plan.

Table 5: Shows that, less than half (52.5%) of the studied patients were 50-<60 years old with mean $\pm$ SD (50.55 $\pm$ 7.63). Regarding gender, more than two thirds (67.5) of the studied patients were female. Majority

(87.5 %,) of the studied patients were married. Most (90.0%) of the studied patients were from urban areas and not had house elevator. nearly half (47.5%) of the studied patients lived in second floor.

Also, all(100.0%) of the studied patients living with family and more than three quarters (77.5%) of the studied patients did not receive information about care after total knee arthroplasty and received care by their children . Concerning Occupation, more than half (55.0%) of the studied patients does not work.

Table 6: Shows that, majority(80.0 %) of patients in the study had obesity regarding BMI, most (90.0%) of patients were had osteoarthritis and less than one fifth (10.0%) of patient had rheumatoid arthritis, two thirds(60.0 %) of patients had no chronic disease, all (100.0 %) of patients in the study using assistive device ,had pain ,using pain killers before surgery and not practicing exercise regularly. More than half (55.0 %) of patients in the study experiencing symptoms ≥ 10 years. Additionally, all (100.0 %) of patients in the study had no family history for TKA and more than three fifth (67.0 %) of patients had no family history for osteoarthritis.

Table (7): Reveals that, majority (80.0% and 82.5%) of patients had inadequate self-care practices regarding Sit and standing on toilet and preventing complications respectively. As well as, more than three quarters (77.5%, 77.5%, 75.0%, 77.5% and 75.0%) of patients had inadequate self-care practices regarding adherence to taking medication, Symptoms and management, Sitting and sleep, climbing and going down the stairs and exercises respectively. Finally, more than three quarters (77.5%) of patients had inadequate total self-care practices regarding discharge plan with mean standard deviation 26.37 ± 4.43 .

Table (8): Reveals that, there was a highly significant correlation coefficient between total nurses' knowledge and total self-care practices of the patients ($r = 0.486$ at $p < 0.0000$). Also, there was a highly significant correlation coefficient between total nurses' practice and total self-care practices of the patients ($r = 0.762$ at $p < 0.000$).

Discussion:

Regarding to demographic characteristics of the studied nurses, the present study revealed that, less than one fifth of the studied nurses were ≥ 40 years old with mean $\pm$ SD(32.39 ± 6.22). The finding of the present study in contrast with **Taha& Ibrahim, (2021)**, in the study entitled “Effect of Educational Program on Nurses' Knowledge, Practices and Patients' Outcomes Post Total Knee Arthroplasty”, stated that, more than half of nurses their age was from 40 to less than 60 years old, with a mean $\pm$ SD of 35.72 ± 8.66 years.

Regarding educational level, the present study revealed that, less than three quarters of the studied nurses had technical institute. The finding of the present study in contrast with **El sayed Mahedy, et al., (2021)**, in the study entitled “nurses' knowledge and practice regarding post-operative pain management for orthopedic patient”, stated that, more than one quarters of nurses had technical institute.

Concerning experience, more than half of the studied nurses had(≥ 10) years' experience in nursing generally and ($5 < 10$) years in orthopedic department with mean $\pm$ S.D (10.21 ± 5.38 & 6.36 ± 3.74 , respectively. The finding of the present study in contrast with **Elsayed& et al., (2023)**, in the study entitled “ Assessment of Nurses' Knowledge Regarding Pre and Postoperative Care of Patients with Total Knee Arthroplasty”, stated that, only one third of the studied nurses had(6 to < 9) years in orthopedic department with mean $\pm$ S.D(3.38 ± 3.32).

Regarding total knowledge of of the studied nurses , the present study revealed that more than three fifth of studied nurses had unsatisfactory knowledge scores regarding total knee arthroplasty. This finding is supported by **Taha& Ibrahim, (2021)**, in the study entitled “Effect of Educational Program on Nurses' Knowledge, Practices and Patients' Outcomes Post Total Knee Arthroplasty”, who revealed that, more than three fifth of studied nurses had unsatisfactory knowledge regarding total knee arthroplasty.

Nurses often have unsatisfactory knowledge regarding the care of patients with TKA due to multiple factors, including inadequate specialized training, limited clinical experience, and insufficient continuing education programs (**Celik et al., 2019**). Studies suggest that gaps in knowledge about post-operative complications, pain management, rehabilitation protocols, and infection prevention can negatively impact patient outcomes (**Li et al., 2021**). Additionally, rapid advancements in surgical techniques and enhanced recovery protocols require nurses to stay updated, yet many healthcare institutions do not prioritize structured training on TKA care (**Smith et al., 2020**). Addressing these knowledge deficits through targeted educational interventions and hands-on training can improve nursing competencies and enhance post-operative care quality for TKA patients.

Regarding to total practice regarding discharge plan of the patient undergoing total knee arthroplasty, the present study revealed that, more than half of the studied nurses had Inadequate practice regarding wound care with mean 23.17 ± 5.28 . The finding of the present study in the same context with **Hamza et al., (2024)**, in the study entitled “Nurses' Knowledge and Performance regarding Prevention of Abdominal

Drains Placements' Infection for Postoperative Patients", stated that, more than half of the studied nurses had poor practice regarding wound care with mean 33.17 ± 7.86 .

Nurses often demonstrate unsatisfactory practice in caring for patients with total knee arthroplasty (TKA) due to inadequate training, heavy workloads, and limited adherence to evidence-based guidelines. Research indicates that many nurses lack proficiency in essential post-operative care aspects, such as pain management, early mobilization, wound care, and infection prevention, leading to suboptimal patient outcomes (*Brown et al., 2020*). Additionally, high patient-to-nurse ratios and time constraints can prevent nurses from providing individualized care and closely monitoring post-operative complications. Furthermore, inconsistent institutional policies and a lack of standardized protocols contribute to variations in nursing practices, reducing overall care quality (*Smith et al., 2021*). Addressing these deficiencies through structured training programs, workload adjustments, and the implementation of standardized guidelines can enhance nursing practice and improve patient recovery following TKA.

Owing to Correlation between total knowledge score and practice score regarding total knee arthroplasty among the studied nurses, the current study Reveals that, there was a highly significant correlation coefficient between total knowledge score and practice score regarding total knee arthroplasty among the studied nurses. In the same context with *Taha& Ibrahim, (2021)*, in the study entitled "Effect of Educational Program on Nurses' Knowledge, Practices and Patients' Outcomes Post Total Knee Arthroplasty" who reported that, It shows a statistically significant positive correlation between the total nurses' knowledge and their practices pre, immediately, post, and three months postprogram implementation.

Regarding to demographic characteristics of the studied patients, the present study revealed that, shows that, about half of the studied patients were 50-<60 years old with mean $\pm$ SD(50.55 ± 7.63). The finding of the present study in the same context with *Abd-Elghany et al., (2019)*, in the study about "Efficacy of Implementing Pre-operative Health Education Program on Post-operative Outcomes of Patients Undergoing Total Knee Arthroplasty." showed that, the majority of the studied patients ranged between 51 to 60 years old. Also, *Güllü & Tosun (2024)*, who reported in the study entitled "Effectiveness of the transitional care model in total knee arthroplasty patients: A randomized controlled trial." that, More than half of the participants were 60–69 years old.

Related to Gender, the results of the present study showed that more than two thirds of the studied patients were female. In agreement with *Abd-Elghany et al., (2019)*, in the study about "Efficacy of Implementing Pre-operative Health Education Program on Post-operative Outcomes of Patients Undergoing Total Knee Arthroplasty." showed that, more than half of the studied patients were females. Also, *Percopo de Andrade et al., (2022)*, who reported in the study entitled "A new methodology for patient education in total knee arthroplasty: a randomized controlled trial" that, more than three quarters of the patients were females. The decision to focus on female patients aged over 50 years in this study is grounded in epidemiological and clinical evidence indicating that women in this age group are disproportionately affected by conditions leading to Total Knee Arthroplasty (TKA). Osteoarthritis, the most common indication for TKA, is significantly more prevalent in postmenopausal women due to hormonal changes, particularly the decline in estrogen levels, which negatively impacts cartilage health, joint integrity and increased inflammation further increasing OA risk in women (*Srikanth et al., 2005; Prieto-Alhambra et al., 2014*). Research indicates that women are more likely to develop knee osteoarthritis (OA), the leading cause of TKA, due to anatomical differences such as a wider pelvis, increased joint laxity, and higher rates of malalignment, which contribute to greater joint stress and cartilage degeneration (*Srikanth et al., 2005*).

Also Studies suggest that women may have lower bone density and muscle strength, leading to reduced joint stability and increased wear on knee cartilage over time (*Hunter & Bierma-Zeinstra, 2019*). Furthermore, social and healthcare-seeking behaviors may play a role, as women are more likely to report knee pain and seek medical intervention earlier than men, leading to a higher rate of TKA procedures. Addressing these gender disparities in knee OA through early prevention strategies and tailored treatment approaches is essential for improving outcomes in female patients. (*Weber et al., 2018*)

Moreover, studies have shown that women over 50 report higher pain levels and functional limitations pre- and post-surgery compared to men, making their post-discharge self-care needs more pronounced and complex (*Reyes et al., 2021*). Age-related physiological changes, including reduced muscle mass, slower wound healing, and comorbidities such as osteoporosis or diabetes, also contribute to slower recovery and increased dependency on nursing guidance during the discharge process (*Zeni & Snyder-Mackler, 2010*). Focusing on this demographic provides insights into how tailored discharge planning and nursing performance can directly impact self-care outcomes for a high-risk, high-need population, thereby informing more effective and equitable care strategies.

Regarding BMI, results of the present study revealed that, majority of patients in the study had obesity regarding BMI. This finding is consistent with **Kaya & Bilik, (2022)**, founded in the study entitled “Effect of counseling on quality of life and self-care agency for patients who are scheduled for total knee replacement” who reported that, more than two thirds of patients in the study had obesity regarding BMI.

Patients' self-care practices regarding discharge plan, the present study revealed that more than three quarters of patients had inadequate self-care practices regarding discharge plan. The previous result was supported by **Abd-Elghany et al., (2019)**, in the study about “Efficacy of Implementing Pre-operative Health Education Program on Post-operative Outcomes of Patients Undergoing Total Knee Arthroplasty.” that, more than two thirds(66.7%) of the patients had Inadequate self-care practices.

Inadequate self-care practices following TKA is often linked to multiple interrelated factors. One primary reason is insufficient discharge education, where patients are not provided with clear, individualized instructions on post-operative wound care, mobility, and exercise routines (**Maramba et al., 2019**). In addition, low health literacy significantly contributes to poor understanding and execution of post-operative instructions, especially among older adults who may struggle with medical terminology or remembering complex regimens (**Lee & Kim, 2022**).

Moreover, pain, fatigue, and emotional distress, such as anxiety or fear of re-injury, also reduce patient motivation and ability to engage in necessary self-care tasks, as well as, lack of caregiver support at home further compromises adherence, particularly for patients who live alone or have limited social resources. Without consistent reinforcement and monitoring, many patients fail to comply with prescribed rehabilitation exercises, leading to delayed recovery or complications. Collectively, these barriers highlight the urgent need for enhanced discharge planning, nurse-led education, and community-based follow-up to support effective self-care in the post-TKA population. (**Kline et al., 2018**)

Conclusion:

There was a positive correlation coefficient between total patients' knowledge and total self-care practices of the patients. There was a positive correlation between total patients' knowledge and total ability to perform of activities of daily living. There was a highly significant correlation between total knowledge score and total practice score regarding total knee arthroplasty among the studied nurses. There was a highly significant correlation between total nurses' knowledge and practice score and total self-care practices of the patients.

Recommendations:

In line with the findings of the study, the following recommendations were derived and suggested:

- Improve nurses' education and training so they can carry out efficient discharge planning with reference to TKA.
- Current training on best practices for teaching patients about post-operative care should be given to nurses.
- Future studies should be done to evaluate the effect of discharge plan on self-care practices for patients post TKA.

Table 1: Frequency Distribution of the Studied Nurses according to their Demographic Characteristics (n=46).

Items	No.	%
Age (Years)		
20-<30	16	34.8
30-<40	27	58.7
≥ 40	3	6.5
Mean ± SD	32.39 ± 6.22	
Gender		
Male	46	0.0
Female		100.0
Educational Qualification		
Diploma	5	10.9
Technical Institute	34	73.9
Bachelor of Nursing	7	15.2
Marital State		
Married	40	87.0
Single	6	13.0

Residence		
Rural	40	87.0
Urban	6	13.0
Monthly income		
Sufficient	5	10.9
Insufficient	41	89.1
Years of experiences in nursing		
1-< 5	9	19.6
5-<10	11	23.9
≥ 10	26	56.5
Mean ± SD 10.21±5.38		
Years of experience in the orthopedic department		
1-< 5	13	28.3
5-< 10	25	54.3
≥ 10	8	17.4
Mean ± SD 6.36 ± 3.74		
Attending a training course on total knee arthroplasty		
Yes	12	26.1
No	34	73.9

SD= Standard deviation.

Table 2: Frequency Distribution of the Studied Nurses according to Total Knowledge regarding Total Knee Arthroplasty (n=46).

Items	Satisfactory		Unsatisfactory		Mean ± SD
	No.	%	No.	%	
Anatomy and physiological function	18	39.1	28	60.9	5.13 ± 0.805
Definition and indications of total knee arthroplasty	17	37.0	29	63.0	3.41 ± 0.540
General information about total knee arthroplasty.	17	37.0	29	63.0	8.97±1.79
Post-operative care					
Pain and leg swelling	16	34.8	30	65.2	4.10 ± 0.822
Wound care	17	37.0	29	63.0	7.08 ± 1.81
Care of the drain	17	37.0	29	93.0	18.65 ± 3.02
Complications	18	39.1	28	60.9	5.78 ± 1.15
Discharge plan					
Medications	13	28.3	33	71.7	6.23 ± 1.31
Follow-up and activities	21	45.7	25	54.3	7.10 ± 1.01
Nutrition	17	37.0	29	63.0	4.32 ± 0.761
Environment	18	39.1	28	60.9	6.58 ± 1.32
Exercise	17	37.0	29	63.0	4.61 ± 1.34
Total knowledge score	17	37.0	29	63.0	83.82 ± 13.83

SD= Standard deviation.

Table3: Frequency Distribution of the Studied Nurses Total Practice regarding Discharge Plan of the patient Undergoing Total Knee Arthroplasty (n=46).

Items	Adequate		Inadequate		Mean ± SD
	No.	%	No.	%	
Pain management	20	43.5	26	56.5	15.26 ± 2.71
Wound Care	19	41.3	27	58.7	23.17 ± 5.28

Drain Care	20	43.5	26	56.5	11.84 ± 2.12
Cold therapy	18	39.1	28	60.9	14.06 ± 2.96
Complications					
Deep venous thrombosis	17	37.0	29	63.0	5.54 ± 1.36
Constipation	20	43.5	26	56.5	3.97 ± 0.954
Swelling	19	41.3	27	58.7	3.32 ± 0.895
Total practice score	20	43.5	26	56.5	77.19± 15.05

SD= Standard deviation.

Table 4: Correlation between Total Knowledge Score and Practice Score regarding Total Knee Arthroplasty among the Studied Nurses (n=46).

Variables	Total practice score	
	r	p-value
Total knowledge score	0.873	0.000**

r= correlation coefficient test. **highly significant at $p < 0.001$

Table 5: Frequency Distribution of the Studied Patients according to their Demographic Characteristics (n=40).

Items	No.	%
Age (Years)		
40-<50	15	37.5
50-<60	21	52.5
≥ 60	4	10.0
Mean ± SD	50.55 ± 7.63	
Gender		
Male	27	32.5
Female		67.5
Marital State		
Married	5	87.5
Single		12.5
Educational Qualification		
Educated	31	22.5
Uneducated		77.5
Residence		
Rural	36	10.0
Urban		90.0
Living status		
Alone	40	0.0
With family		100.0
Occupation		
Works	22	45.0
Does not work		55.0
Home caregiver		
Spouse	9	22.5
Child	31	77.5
Receive information about care after total knee arthroplasty		
Yes	9	22.5
No	31	77.5
Residence floor		
First	17	42.5
Second	19	47.5

More than second	4	10.0
House elevator		
Yes	4	10.0
No	36	90.0

Table 6: Frequency Distribution of the Studied Patients according to their Medical History (n=40).

Items	No.	%
Body Mass Index		
Underweight	0	0.0
Normal	8	20.0
Obesity	32	80.0
Mean $\pm$ SD	28.42 $\pm$ 3.28	
Current diagnosis		
Osteoarthritis	36	90.0
Rheumatoid arthritis	4	10.0
Chronic diseases		
Yes	16	40.0
No	24	60.0
If yes, mention (n=16)		
Hypertension	8	50.0
Diabetes Mellitus	6	37.5
Ischemic Heart Disease	2	12.5
Previous surgeries		
Yes	15	37.5
No	25	62.5
If yes, mention (n=15)		
Cholecystectomy	9	60.0
Appendectomy	5	33.3
Hysterectomy	1	6.7
Family history of osteoarthritis		
Yes	13	32.5
No	27	67.5
Family history for TKA		
Yes	0	0.0
No	40	100.0
Period of symptoms		
<1 year	0	0.0
1-<5	0	0.0
1-<10	18	45.0
≥ 10	22	55.0
*Experiencing symptoms		
Pain	40	100.0
Hardening	39	97.5
Swelling	9	22.5
Reasons for surgery		
Knee osteoarthritis	36	90.0
Rheumatoid arthritis	4	10.0

Table 7: Frequency Distribution of the Studied Patients according to Total Self-Care Practices regarding Discharge Plan (n=46).

Items	Adequate		Inadequate		Mean $\pm$ SD
	No.	%	No.	%	
Adherence to taking medication	9	22.5	31	77.5	1.22 $\pm$ 0.422

Symptoms and management	9	22.5	31	77.5	2.15 ±0.533
Sitting and sleep	10	25.0	30	75.0	3.17 ±0.549
Walking	11	27.5	29	72.5	6.62±1.25
Climbing and going down the stairs	9	22.5	31	77.5	3.15 ± 0.662
Sit and standing on toilet	8	20.0	32	80.0	3.12 ± 0.515
Exercises	10	25.0	30	75.0	3.20 ± 0.607
Prevent possible complications	7	17.5	33	82.5	3.90 ± 0.841
Total self-care practices score	9	22.5	31	77.5	26.37± 4.43

SD= Standard deviation

Table 8: Correlation between Total Nurses' Knowledge, Total Nurses' Practice and Total Patients' Self-Care Practices (n=40).

Variables		Total knowledge score	Total nurses' practice score
Total patients' self-care practices score	r	0.486	0.526
	p	0.000**	0.000**

r= correlation coefficient test. **highly significant at $p < 0.001$.

Interpretation of r: Weak (0.1-0.24) Intermediate (0.25-0.74) Strong (0.75-0.99).

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