Nurses' Performance Regarding Discharge Plan for Patients Post Total Knee Arthroplasty

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ABSTRACT

Background: The gold standard treatment for end-stage arthritis is total knee arthroplasty, which has a high rate of efficacy and satisfaction among patients. **Aim of the study:** This study aimed to evaluate nurses' performance regarding discharge plan for patient post total knee arthroplasty. **Subjects and methods:** 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 all available nurses (46 nurses) were selected from the mentioned setting. **Tools of data collection:** two tools were utilized for data collection: Self-administered questionnaire and observational checklist. **Results:** Revealed that, less than two thirds (63%) of the studied nurses had unsatisfactory knowledge regarding total knee arthroplasty. More than half (56.5%) had inadequate total practice scores regarding discharge plan of the patient undergoing total knee arthroplasty. **Conclusion:** there was a highly significant association between overall studied nurse's knowledge score and total practice score related to total knee replacement. **Recommendation:** Improving nurses' education and training so they can carry out efficient discharge planning.

Keywords: Discharge plan, Nurses' performance, Total knee arthroplasty.

Introduction

A total knee arthroplasty 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 and 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 and 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).**

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).**

Nurses are crucial facilitators of discharge planning. They instruct patients on follow-up appointments, mobility techniques, pain management, and wound care. Discharge education led by nurses increases self-efficacy and improves patient outcomes. However, several variables, including experience, workload, and institutional support, might affect a nurse's success. Thus, regular evaluation and training are crucial **(Gholami, Pahlavanzadeh and Alhani, 2021).**

Significance of the study

Effective discharge planning following total knee arthroplasty is crucial to ensure optimal recovery, reduce readmission rates, and improve patient outcomes. Nurses play a pivotal role in discharge education by providing patients with essential instructions on medication, wound care, mobility, and rehabilitation. Evaluating nurses' performance in discharge planning not only highlights current practices but also identifies areas needing improvement to enhance patient safety and continuity of care. Inadequate discharge planning and minimal patient education have been related with higher complications, poor adherence to post-operative regimens, and delayed functional recovery **(Kim, Lee and Kwon, 2020).** So, the study was carried out to evaluate nurses' performance regarding discharge plan for patient post total knee arthroplasty.

Aim of the study

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

This aim was achieved through the following objectives:

1- Assess nurses' knowledge regarding discharge plan for patient post total knee arthroplasty.

2- Assess nurses' practice regarding discharge plan for patient post total knee arthroplasty.

Research questions

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

Subjects and methods

Research design

A descriptive design was utilized to accomplish the aim of this study and to answer the research questions

Study setting

This study was conducted at orthopedic department of New Surgery hospital at Zagazig University Hospitals, Sharqia Governate, Egypt.

Study subjects

The study involved convenient sample of all available nurses (46) working at orthopedic department of new surgery hospital at Zagazig University hospital.

Tools for data collection

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

Part I: 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.

Part II: Nurses' knowledge assessment questionnaire: This part was used to assess nurse's knowledge regarding total knee arthroplasty the questionnaire contained 122 questions in the form of true and false and MCQ, divided into 12 subscales (anatomy and physiological function subscale which consisted of eight questions ,definition and indications of subscale which consisted of four questions items, general knowledge about which contain 13 questions, pain and leg swelling which involve six questions, wound care which contain 11 questions, care of the drain which involve 28 questions, post-operative complications subscale which consisted of eight questions, medications post total knee arthroplasty which contain 10 questions, follow-up and activities which involve 10 questions, nutrition which contain six questions, environment which involve nine questions and exercise which contain nine questions. it was designed by researcher based on relevant researches **(Mahedy, Mohamed and Mustafa, 2021; Kaur et al, 2022; Elsayed, Ibraheem and Amin, 2023; Piyakhachornrot and Youngcharoen, 2024; Mahmoud et al, 2024; Han & Liu, 2024; Lu et al., 2024).**

Scoring system:

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 ≥ 80%. (98-122 grades) and unsatisfactory if score from <80%. (0-97 grades). Based on statistical analysis.

Tool II: Observational checklist: It was used to assess nurses' practice regarding discharge plan of the patient undergoing total knee arthroplasty .The scale contained 115 steps in the form of done or not done questions, divided into

seven subscales (pain management subscale which consisted of 22 steps, wound care subscale which consisted of 36 steps, drain care which contain 17 steps, cold therapy which involve 21 steps, DVT preventive measures which contain eight steps, constipation prevention which involve six steps and swelling prevention which contain five steps.

It was adopted from **(Andrews, 2013; Perry et al., 2014; Jani and Marsicano, 2018; Lavery, 2021; Mahedy, Mohamed and Mustafa, 2021; Sajedi-Monfared, 2021; Wickline et al, 2023).**

Scoring system:

The scale using a 2-point scale that ranges from 1 “done”, zero “not done or done incorrectly”. 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 ≥ 80%. (92-115 grades) and Inadequate if score from <80%. (0-91 grades). Based on statistical analysis.

Content validity and reliability

A five-member jury of experts, including three assistant professors of Medical Surgical Nursing, Faculty of Nursing, Zagazig University, a surgeon who is a professor of Orthopedic Surgery Department, and a Physiotherapist who is assistant professors of physical therapy, evaluated the tools for comprehensiveness, clarity, applicability, understanding, and relevance. The findings of the pilot study and the expertise's adjustments led to certain changes being made, such as rewording or rephrasing some of the questions and occasionally changing others.

It had been drawn, the final form. Internal consistency testing was used to evaluate the instruments' dependability. The Cronbach's alpha reliability coefficients for nurses' knowledge and practice were determined to be 0.878 and 0.896, respectively. Testing for reliability was done prior to the start of data collecting.

Field work

Data collection was carried out over a period of ten months, from April 2023 to the end of January 2024. 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 1- 2 hours.

Pilot study

Four nurses (10%) of the entire study population participated in a pilot study to see whether the tools are time-consuming, practicable, applicable, clear, and intelligible. Based on the findings of the pilot research, the necessary adjustments were made. Later, pilot participants were not

included in the primary study population.

Administration and ethical consideration

First, the study proposal was accepted by the Zagazig University Faculty of Nursing's Post Graduate Committee and Research Ethics Committee (REC) with the code of M.D.ZU.NUR/202/14/11/2023. the general director of Zagazig University Hospitals received the required approvals, which were acquired from the dean of the Faculty of Nursing. After outlining the goal of the study, the head of the aforementioned setting granted permission to conduct it. During the first interview, each prospective participant was briefed about the nature, goals, and advantages of the study, as well as the fact that participation is entirely voluntary. By coding all of the data, the subjects' confidentiality and anonymity were likewise guaranteed. The researcher assured that the data collected, and information would 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.

Additionally, each participant gave their informed consent after being fully informed of the study's purpose and methods, and before they were included in the study. They were made aware of their freedom to decline or leave the study at any moment, without explanation or repercussions.

Statistical analysis

Microsoft Excel and the Statistical Package for Social Science (SPSS) version 25 computer program were used to perform the statistical analysis of the data. Descriptive statistics were used to present the data: the mean (X) and standard deviation (SD) for quantitative data, and frequencies and percentages for categorical data. P-value was used to evaluate the association between two variables, the chi square test (X^2) was used to compare qualitative variables, and the Pearson correlation test (R-test) was used to determine the correlation between the research variables. When $p < 0.05$, a level value was deemed significant, and $p < 0.01$ deemed very significant, while $p \geq 0.05$ was deemed not significant.

Results

According to **Table (1)** demonstrates that over half (58.7%) of the studied nurses fall within 30 -40 age range with mean ± SD (32.39 ± 6.22), all (100%) were females .Majority (87.0% and 89.1%) were from rural areas, married, and had insufficient income, respectively. Regarding educational qualification, less than three quarters (73.9%) had technical Institute degree and not attending a training course regarding total knee arthroplasty. While more than one fifth (15.2%) had Bachelor of Nursing. Concerning experience, more than half (56.5% and 54.3%) had (≥ 10) years' experience in nursing generally and (5 - 10) years in orthopedic department with mean ± S.D (10.21 ± 5.38 and 6.36 ± 3.74) respectively.

Table (2) Shows that, more than two thirds of the studied nurses (60.9%,63.0%and63.0%) had unsatisfactory knowledge scores regarding to anatomy and physiological function of knee joint, definition and

indications of TKA and general information about TKA, respectively. Regarding post-operative care nearly two thirds of studied nurses (65.2%) had unsatisfactory knowledge regarding Pain and leg swelling, less than two thirds (63.0%) had unsatisfactory knowledge scores regarding wound care and complications for TKA patient and most (93.0%) had unsatisfactory knowledge regarding care of the drain. Also, the table reveals that Less than three quarters (71.7%) of studied nurses had unsatisfactory knowledge regarding medications and more than half (54.3%) had unsatisfactory knowledge regarding follow-up and activities. less than two thirds (63.0%) of studied nurses had unsatisfactory knowledge regarding nutrition, environment and exercise. Finally, regarding total knowledge of studied nurses slightly less than two thirds (63%) had unsatisfactory total knowledge regarding TKA. While, only more than one third (37%) of them had satisfactory knowledge.

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 ± SD of 15.26 ± 2.71, 23.17 ± 5.28 and11.84 ± 2.12 , respectively, less than two thirds (60.9%) had inadequate practice regarding cold therapy. with a mean ± SD of 14.06 ± 2.96. Also, the table reveals that less than two thirds (63.0%) had inadequate practice regarding DVT preventive measures with a mean ± SD of 5.54 ± 1.36, more than half (56.5%) had inadequate total practice score regarding discharge plan for the patient undergoing TKA with a mean ± SD of 77.19 ± 15.05.

Table (4) Clarifies that, there was a high statistically significant relation between total knowledge of the studied nurses and their educational level and attending a training course on TKA ($p < 0.051$). On the other hand, there is no statistically significant relation between total knowledge of the studied nurses and others related demographic characteristics ($p > 0.05$).

Table (5) clarifies that, there was a high statistically significant relation between total practice of the studied nurses and their educational level, income and attending a training course on TKA ($p < 0.001$). On the other hand, there is no statistically significant relation between total practice of the studied nurses and demographic characteristics regarding age, marital State, place of residence, years of experiences in nursing and years of experience in orthopedic department ($p > 0.05$).

Table (6) Reveals that, there was a highly significant correlation coefficient between nurse's total knowledge score and nurses total practice score regarding TKA among the studied nurses ($r = 0.873$at $p < 0.000$)**.**

Discussion

Among demographic characteristics of the nurses under study, the current study found that, over half of the studied nurses fall within thirty -forty age range with mean, 32.39 ± 6.22. The current study's findings contrast with those of **Taha and Ibrahim, 2021.** In the study of "the Effect of Educational Program on Nurses' Knowledge, Practices and Patients' Outcomes Post Total Knee Arthroplasty" which found that over half of nurses were between the ages of forty

and under sixty, with a mean ± SD of 35.72±8.66 years.

According to the present analysis, all of the studied nurses were female. the result was in the same line with **Al-Mugheed et al. 2023** In the study of " nursing care and barriers for preventing venous thromboembolism in patients undergoing total knee and hip arthroplasty" who found that all of the nurses in the current study were female.

The current analysis found that less than three-quarters of the studied nurses had a technical institute degree. In contrast to **Mahedy, Mohamed and Mustafa 2021** in the study of, "nurses' knowledge and practice of post-operative pain treatment for orthopedic patients" findings indicate that over one-quarter of nurses graduated from technical institute.

In terms of experience, over half of the nurses in the study had ten years or more of general nursing experience and five–ten years of orthopedic department experience, with mean ± standard deviation (10.21±5.38 & 6.36 ± 3.74, respectively). The current study was in contrast with **Elsayed, Ibraheem and Amin, 2023** in the study of "nurses' knowledge regarding pre and postoperative care of patients with total knee arthroplasty" found that only one-third of the nurses had worked in the orthopedic department for six to < nine years, with a mean ± standard deviation of 3.38±3.32.

According to the current study, more than three-fifths of the nurses who were the subject of the study had unsatisfactory knowledge scores about TKA. In the same line with **Taha and Ibrahim, 2021.** study, over three-fifths of the nurses in the study possessed inadequate knowledge about the procedure. Lack of specialized training are two of the many reasons why nurses frequently possess unsatisfactory knowledge **Celik, 2019.** In my opinion the studied nurses had unsatisfactory knowledge scores about TKA as Nurses may not receive ongoing training or updates after graduation, Hospitals may not provide easy access to the latest clinical guidelines or journals and Without encouragement or incentives, some nurses may not prioritize knowledge updates.

This research found that over half of the nurses in the study had inadequate overall practice scores when it came to the discharge plan for patients having TKA. More than three-fifths of the nurses in the study had inadequate overall practice about TKA, according to **Taha and Ibrahim, 2021.**

Due to insufficient training, excessive workloads, and a lack of commitment to evidence-based guidelines, nurses frequently display subpar practice when caring for patients undergoing TKA. Suboptimal patient outcomes result from the fact that many nurses are not proficient in critical post-operative care areas, including pain management, early mobilization, wound care, and infection control, according to research carried by **Brown, 2020.** In my opinion the studied nurses had unsatisfactory knowledge scores about TKA as Nurses had Inadequate education or training on specific clinical procedures or updated guidelines, Poor understanding of evidence-based practice and protocols, Insufficient staffing, especially during night shifts or weekends and Lack of resources, such as

medical supplies or functioning equipment.

The results of the current study demonstrated that there is no statistically significant relation between the studied nurses' total knowledge regarding TKA and their demographic characteristics, including age and years of nursing experience. The result was agreed with **Awad and Ali, 2023,** in the study of "nurses' knowledge, attitudes, and perceived barriers to pain management" found that there is no relationship between age, years of experience, nurses' knowledge, and attitude.

The current study findings indicated that there was a highly statistically significant relationship between the studied nurses' total practice and attending a training course regarding TKA. In the same vein with, **Hamza, shafek and abdelraoof, 2024** in the study of "nurses' performance and knowledge regarding the prevention of infection from abdominal drain placements for postoperative patients" found that a number of factors, such as attending training courses on the prevention of abdominal drain placement infection, that were thought to influence nurses' level of practice regarding the prevention of surgical site infection (SSI).

The results of the current study demonstrated a statistically significant relation between the nurses' total practice, educational attainment, and participation in a TKA training course. However, there is no statistically significant relation between the age-related demographics of the nurses under study and their overall practice. According to **Elsaoudy, Mahmoud and elmaged, 2022**, in the study of "nurses' knowledge and practice in caring for patients undergoing chest tubes" revealed a highly significant relation between the total practice of the nurses under study and their years of experience and educational attainment and there was an association with training course attendance. However, there was no discernible relationship between age and gender.

The current study shows that there was a highly significant correlation between the nurses' total knowledge score and practice score. According to **Taha and Ibrahim, 2021.** There is a statistically significant positive correlation between nurses' knowledge and practices.

Conclusion

Based on the current study's findings, it can be said that less than two thirds of the nurses had unsatisfactory overall knowledge scores regarding the procedure, over half of the nurses who were studied had inadequate overall practice scores concerning the discharge plan for patients undergoing TKA, and There was a highly significant association between studied nurses overall knowledge score and their total practice score with regard to TKA.

Recommendations

Based on findings, the study recommended

- Enhance nurses' training so they can carry out efficient discharge planning with reference to TKA.
- Training schedule must be conducted to nurses to update their knowledge and practice regarding TKA.
- Illustrated booklet must be prepared and put in such department including discharge plan post TKA.
- More research is required to assess how discharge plans affect nurses' performance for patients after total knee arthroplasty.

Authours' contributions

R.M.A; Conceived and designed the study, developed the research tools, conducted data collection, and contributed significantly to data interpretation and manuscript writing. M.A.M; Supervised all stages of the study, revised multiple drafts critically for intellectual content. H.K.Z; Provided the first draft of the manuscript before its publication, participated in all the steps of research. N.M.T; Conducted the overall supervision of the manuscript before its publication and approved the final version for publication. All authors reviewed and approved the final manuscript and take full responsibility for the integrity of the work.

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Declaration of conflicting interest

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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	0	0.0
Female	46	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 >80%**		**Unsatisfactory <80%**		**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	3	6.5	43	93.5	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.

Table (3): Frequency distribution of the studied nurses' total practice regarding discharge plan of the patient undergoing total knee arthroplasty (n=46)

Items	Adequate > 80%		Inadequate < 80%		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**

Table (4): Relations between demographic data of the studied nurses and their total knowledge regarding total knee arthroplasty (n=46)

Demographic data		Levels of total knowledge				X^2	P-Value
		Satisfactory (n=17)		Unsatisfactory (n=29)			
		No.	%	No.	%		
Age (years)	20-<30	7	41.2	9	31.1	**2.07**	**0.354**
	30-<40	10	58.8	17	58.6		
	≥ 40	0	0.0	3	10.3		
Education level	Diploma	0	0.0	5	17.2	**15.70**	**0.000****
	Technical Institute	10	58.8	24	82.8		
	Bachelor of Nursing	7	41.2	0	0.0		
Marital State	Married	15	88.2	25	86.2	**0.039**	**0.844**
	Single	2	11.8	4	13.8		
Residence	Rural	15	88.2	25	86.2	**0.039**	**0.844**
	Urban	2	11.8	4	13.8		
Income	Sufficient	5	29.4	0	0.0	**9.570**	**0.002****
	Insufficient	12	70.6	29	100.0		
Years of experiences in nursing	1-< 5	4	23.5	5	17.2	**2.801**	**0.247**
	5-<10	6	35.3	5	17.2		
	≥ 10	7	41.2	19	65.6		
Years of experience in orthopedic department	1-< 5	5	29.4	8	27.6	**0.860**	**0.650**
	5-< 10	8	47.1	17	58.6		
	≥ 10	4	23.5	4	13.8		
Attending a training course on total knee arthroplasty	Yes	12	60.0	0	0.0	**21.10**	**0.000****
	No	8	40.0	26	100.0		

Table (5): Relations between demographic data of the studied nurses and their total practice regarding total knee arthroplasty (n=46)

Demographic data		Levels of total practice				X^2	P-Value
		Adequate (n=20)		Inadequate (n=26)			
		No.	%	No.	%		
Age (years)	20-<30	8	40.0	8	30.8	0.485	0.785
	30-<40	11	55.0	16	61.5		
	≥ 40	1	5.0	2	7.7		
Education level	Diploma	1	5.0	4	15.4	11.14	0.004**
	Technical Institute	12	60.0	22	84.6		
	Bachelor of Nursing	7	35.0	0	0.0		
Marital State	Married	18	90.0	22	84.6	0.289	0.591
	Single	2	10.0	4	15.4		
Residence	Rural	17	85.0	23	88.5	0.119	0.730
	Urban	3	15.0	3	11.5		
Income	Sufficient	5	25.0	0	0.0	7.293	0.007**
	Insufficient	15	75.0	26	100.0		
Years of experiences in nursing	1-< 5	5	25.0	4	15.4	4.06	0.131
	5-<10	7	35.0	4	15.4		
	≥ 10	8	40.0	18	69.2		
Years of experience in orthopedic department	1-< 5	5	25.0	8	30.8	1.43	0.488
	5-< 10	10	50.0	15	57.7		
	≥ 10	5	25.0	3	11.5		
Attending a training course on total knee arthroplasty	Yes	12	60.0	0	0.0	21.10	0.000**
	No	8	40.0	26	100.0		

Table (6): 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**

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