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Dr. Ankush Patrick
Professor, Index Nursing
College, Indore, Madhya
Pradesh, India

Dr. Naveen Jaiswal
Professor, Index Nursing
College, Indore, Madhya
Pradesh, India

Effectiveness of video assisted teaching module on knowledge, attitude and practice among the patients undergoing total knee replacement

Ankush Patrick and Naveen Jaiswal

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Abstract

The conceptual framework for this study was established based on Orem's General Theory of nursing model. To meet the study's objectives, an experimental research design employing a pre-experimental one-group pre-test and post-test approach was utilized. The research was carried out at Index Hospital in Indore, involving a sample of 45 patients selected through a non-probability convenience sampling method. Data collection was facilitated through a demographic variable proforma, a structured questionnaire consisting of 30 items on knowledge, a 10-item attitude questionnaire, and a practice observation checklist focused on total knee replacement. Following the pre-test, a video-assisted teaching module regarding total knee replacement was provided to the patients. The post-test was conducted on the seventh day after the intervention. The gathered data were organized and analyzed using both descriptive and inferential statistical methods.

The demographic analysis revealed that a significant majority of participants were female (86.7%), with most falling within the age range of 61-70 years (51.1%). Additionally, 60% of the participants had completed education up to the higher secondary level, and 75.6% had no prior exposure to information regarding total knee replacement. The findings indicated a clear need for educational interventions on total knee replacement among the participants. In the pre-test, it was observed that 37 participants (82.2%) exhibited inadequate knowledge, whereas in the post-test, a substantial majority (88.9%) demonstrated adequate knowledge.

Furthermore, a notable improvement was recorded in the post-test mean score ($M=86.96$, $SD=8.09$) compared to the pre-test scores ($M=44.15$, $SD=10.99$), with a 't' value of 23.143, which was statistically significant at the $p<0.001$ level. An association was identified between the demographic variables and the pre-test levels of knowledge and attitude; however, no significant association was observed in the post-test results. An association was also noted concerning the practice.

Keywords: Orem's general theory of nursing, experimental research design, total knee replacement education, pre-test and post-test intervention

Introduction

"Human body has the capacity to produce nearly an infinite variety of postures and movements that require the tissues of the body to both generate and respond to forces that produce and control movement at the body's joints". Therefore the aim of the treatment is not to add years to life but to improve its quality. Arthritis of the knees is extremely common in India. In arthritis all the movements of the joints are restricted by pain. Beyond certain stage, painkillers, injections, massage or any other form of healing may not be adequate. So there becomes need for total knee replacement. Total knee replacement is the gold-standard operation for knee arthritis. Total knee replacement is a wonder of modern surgery, and it is most commonly performed orthopedic procedure. Agency for Health Care Research and Quality's Health Care Cost and Utilization Project (HCUP): reported that the number of total knee replacements (TKRs) performed in the United States almost doubled between 1995 (2,93,086) and 2005 (5,49,867). According to Indian joint replacement statistics, worldwide 5,00,000 replacement surgeries have been performed each year. A total of 45,000 TKR were performed last year in India.

This may lead to more than 3,50,000 TKRs per year by the end of the decade. The first hinged knee prosthesis, made up of ivory was inserted in the year 1891 by German Surgeon "Themistocles Gluck" to replace a tubercular joint. The introduction of the "total condylar

Corresponding Author:
Dr. Ankush Patrick
Professor, Index Nursing
College, Indore, Madhya
Pradesh, India

prosthesis" by Insall and Colleagues in 1972 is generally agreed to mark the era of "Modern" knee replacements. This prosthesis was the first to replace all the compartment of the knee. According to the HCUP, acute care discharge disposition for TKR in 2005 was 41% in rehabilitation center, in the nursing home it was 32% and 26% was in the home health care setting.

Need for study

Total Knee Replacement (TKR) ranks among the most frequently performed orthopedic surgeries in India; however, there is a scarcity of research focusing on patients' experiences with the procedure. Peter Bonutti, an orthopedic surgeon who has addressed this issue, remarked, "Perhaps we do not fully grasp what our patients prioritize." He referenced two studies indicating that approximately one-third of patients expressed dissatisfaction with TKR and emphasized the necessity of understanding the procedure from the patients' perspective rather than solely from that of the surgeons. This disparity in viewpoints was further underscored in a study involving 108 patients who underwent 120 TKRs, which revealed a poor correlation between patients' subjective assessments and physicians' objective evaluations of outcomes. The researcher concluded that "Surgeons tend to report higher satisfaction levels than patients."

According to Malhotra (1988) ^[11], "Nurses play a vital role not only in the treatment and care of ailments but also in the prevention of illness and the promotion of health. They make significant contributions to achieving the overall health of individuals, families, and the broader community." A video-assisted teaching module on total knee replacement aims to enhance knowledge, foster a positive attitude, and guide patients in practicing exercises both in the hospital and at home. Educating clients about total knee replacement is expected to enhance their quality of life.

Tracey O'Neill notes that the decision-making process regarding TKR surgery is highly intricate. Patients must consider various factors before arriving at a decision about the surgery. By synthesizing ten qualitative studies, the importance of healthcare professionals in this process has been highlighted. The role of nurses is particularly significant in educating clients and raising awareness about total knee replacement. Providing a video-assisted teaching module will further enhance clients' understanding of the procedure.

Statement of the problem

A study to assess the effectiveness of video assisted teaching module on knowledge, attitude and practice among the patients undergoing total knee replacement at selected Hospital, Indore.

Objectives

- To assess the existing knowledge and attitude of patient on total knee replacement.
- To assess the effectiveness of video assisted teaching module on knowledge, attitude on total knee replacement.
- To assess the existing practice of patient after surgery.

- To correlate between knowledge, attitude and practice on total knee replacement among the patient undergoing total knee replacement.
- To associate the knowledge, attitude and practice of patient on total knee replacement with selected demographic variables like age, sex, occupation, educational status, place of residence etc.

Review of literature

Nilenshah performed a prospective randomized trial comparing unicompartmental knee replacement (UKR) and total knee replacement (TKR) involving a cohort of 100 patients. The study successfully established two comparable groups, with an average age of 69 years. The same surgical team executed both UKR and TKR procedures based on random assignment. Out of the participants, 50 underwent UKR while 52 received TKR. All patients followed an identical post-operative regimen and mobilization protocol facilitated by physiotherapists. Evaluations were conducted systematically, both clinically and radiographically, before and after the surgeries. The follow-up period extended for a minimum of five years. The findings at the five-year mark indicated that the UKR group experienced reduced perioperative morbidity and an earlier recovery of knee range of motion. After five years, both UKR and TKR demonstrated comparable effectiveness in alleviating pain. Investigated the impact of quadriceps strengthening exercises following total knee replacement in a sample of 50 patients. Their results indicated that those who engaged in quadriceps strengthening exercises exhibited improved knee mobility post-surgery. Explored the use of minimally invasive computer-navigated total knee arthroplasty. Advanced computerized navigation systems assist surgeons in both traditional and minimally invasive techniques, optimizing the mechanical and rotational alignments of components across all three planes to prevent malrotation and errors in coronal, sagittal, and axial alignments. The benefits of minimally invasive total knee arthroplasty can be realized without compromising accuracy. There is growing evidence supporting a positive relationship between precise mechanical alignment following total knee replacement and improved quality of life outcomes for patients.

Results

The data indicates that a significant proportion of participants fell within the age range of 61 to 70 years, accounting for 51.1%. Furthermore, a predominant majority of the participants were female, comprising 86.7% of the total. Additionally, 60% of the participants had attained education up to the higher secondary level. A considerable number of participants had been experiencing osteoarthritis of the knee for a duration of 3 to 6 years, representing 53.3% of the group. Notably, 75.6% of the participants reported a lack of prior exposure to information regarding total knee replacement (TKR). This underscores the necessity for educational initiatives concerning total knee replacement among the majority of participants. This section focuses on the assessment of the current knowledge and attitudes of patients.

Table 1: Mean and standard deviation of knowledge scores regarding Total Knee Replacement in the Pre-Test.

Knowledge Aspects	Mean	S.D.	Minimum Score	Maximum Score
Anatomy & physiology	98.89	7.45	50.0	100.0
Signs & symptoms	100.0	0.0	100.0	100.0
Surgical procedure	40.44	27.79	0.0	100.0
Preparing Surgery	17.78	26.21	0.0	66.67
Activity & Exercise	44.44	11.17	25.0	75.0
Pain Management	97.78	14.91	0.0	100.0
Diet	51.55	15.66	20.0	100.0
Complication	1.1	7.45	0.0	50.0
General Information	19.26	26.10	0.0	100.0
Overall Knowledge	44.15	10.99	30.0	76.67

The table indicates that all participants (100%) are aware of the signs and symptoms of knee osteoarthritis. However, only 50% possess knowledge regarding anatomy and physiology, while 20% are informed about dietary considerations, and 25% have knowledge related to activity

and exercise. The overall mean knowledge score was 44.15, with a standard deviation of 10.99. This suggests that there is a need for educational initiatives focused on surgical procedures, diet, and exercise following total knee replacement (TKR).

Table 2: Distribution of Level of Knowledge on Total Knee Replacement in the Post- test n =45

Knowledge Aspects	Inadequate Knowledge		Moderate Knowledge		Adequate Knowledge	
	N.	%	N.	%	N.	%
Anatomy & physiology	0	0.0	0	0.0	45	100.0
Signs & symptoms	0	0.0	0	0.0	45	100.0
Surgical procedure	0	0.0	1	2.2	44	97.8
Preparing Surgery	3	6.7	16	35.6	26	57.8
Activity & Exercise	1	2.2	11	24.4	33	73.3
Pain Management	0	0.0	0	0.0	45	100.0
Diet	2	4.4	11	24.4	32	71.1
Complication	31	68.9	0	0.0	14	31.1
General Information	0	0.0	22	48.9	23	51.1
Overall Knowledge	0	0.0	5	11.1	40	88.9

The table indicates that a significant majority of the participants (89.9%) possessed sufficient knowledge. Notably, all participants (100%) demonstrated adequate understanding of anatomy and physiology, signs and symptoms, as well as pain management related to knee osteoarthritis. This suggests that video-assisted teaching serves as an effective method for enhancing the participants' knowledge.

Discussion

This study aimed to evaluate the effectiveness of a video-assisted teaching module on the knowledge, attitudes, and practices of patients undergoing total knee replacement at Index Hospital in Indore. The research involved 45 patients who had undergone the procedure at the same facility. The effectiveness of the video-assisted teaching module was measured through a post-test conducted on the day of discharge.

Table 1 presents significant findings regarding the demographic characteristics of the participants, with a notable majority being female (86.7%). This prevalence may be linked to the higher incidence of knee osteoarthritis among women. The age distribution indicated that most participants were between 61 and 70 years old (51.1%), and 60% had completed education up to the higher secondary level. This suggests that educational materials could be effectively delivered through handouts, pamphlets, or primarily through the video-assisted teaching module.

In terms of socioeconomic status, 71.1% of participants reported a family income ranging from Rs. 10,001 to Rs.

15,000, while 57.8% resided in urban areas. The family structure was predominantly nuclear (88.9%), and 88.9% identified as Hindu. A significant majority of the participants were married (97.8%), with the duration of knee osteoarthritis reported to be between 3 to 6 years for 53.3% of them. Furthermore, 93.3% of participants had no family history of the condition, and 75.6% had not previously received information regarding total knee replacement. These findings indicate a substantial need for educational interventions concerning total knee replacement among the participants.

Conflict of Interest

Not available

Financial Support

Not available

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