

Impact of Nursing Instructions and Exercises Training on Functional outcomes for Patients Undergoing Hip Joint Replacement

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Abstract

Background Hip joint replacement is a major orthopedic procedure that improves function of hip and quality of life. Postoperative recovery depends on the patient's adherence to safety guidelines and physical rehabilitation. **Aim:** This study evaluated how nursing instructions and exercises training affect functional outcomes among patients undergoing hip joint replacement. **Research design:** Quasi experimental research design was adopted. **Setting:** The study was conducted at trauma department at Assiut University Hospitals, Egypt. **Subjects:** The study sample comprised sixty male and female patients whose ages were between 20-65 years; all had hip fractures, attended the trauma department, and agreed to take part voluntarily. Random allocation will place these patients equally into the study group and control group, with (30) assigned to each. **Tools:** Included (I) Patient assessment sheet and (II) Harris Hip Score (HHS). **Results:** At 3 and 6 months post- operatively, total knowledge score and functional outcomes showed a statistically significant difference for the study group versus the control group, with p. value =0.001. **Conclusion:** Overall study findings demonstrated that nursing instructions and exercises training significantly improved patients' knowledge and functional outcome regarding hip joint replacement for the participating patients. **Recommendations:** It is highly recommended to integrate structured educational booklets and supervised exercise protocols into standard orthopedic discharge planning across hospitals.

Key words: Exercises Training, Functional outcomes, Hip Joint Replacement, Nursing Instructions.

Introduction

Hip joint replacement is recognized as one of the most effective surgical procedures for alleviating severe joint pain, restoring mobility, and improving the overall quality of life in patients suffering from advanced osteoarthritis, hip fractures, or joint degeneration. However, successful surgical intervention alone does not guarantee optimal recovery; functional rehabilitation depends heavily on structured post-operative care, active patient engagement, and targeted physical activity (Wooster et al., 2023).

Over recent decades, aging populations have contributed to a substantial global rise in total hip arthroplasty (THA) incidence. Annually, millions of hip replacement procedures are performed worldwide approximately 184 to 191 procedures per 100,000 individuals, grow by over 40% by 2050. Estimates for Egypt and the region place the annual incidence of low-energy hip fractures

at approximately 123.34 per 100,000 among women and 55.19 per 100,000 among men aged 40 years (Song et al., 2025). According to Assiut University Hospital records through year 2025; about (160) patients have total hip replacement surgery (Assiut University Hospital records, 2025).

By limiting patient mobility, independence, and overall quality of life, hip joint replacement represents a substantial global health burden. Despite the high surgical success rates of THA, the procedure itself introduces immediate postoperative challenges, including decreased muscle strength, joint stiffness, impaired balance, and a temporary loss of functional independence. Surgical success requires more than correct mechanical alignment involving the implant; effective postoperative rehabilitation and strong patient adherence to recovery protocols are also decisive throughout the recovery process for every patient (Ali and Hemed., 2024).

Despite the high success rates of total hip arthroplasty (THA), the procedure carries risks of perioperative and postoperative complications that can significantly impede functional recovery. These complications are generally categorized into acute and chronic manifestations. Both surgical trauma and transient immobilization make patients especially vulnerable during the immediate postoperative phase to deep vein thrombosis (DVT) and pulmonary embolism (PE). Furthermore, surgical site infections that often requires aggressive antibiotic therapy or surgical revision. Mechanical instability, primarily manifesting as prosthesis dislocation. With time, postoperative complications may become chronic and continue to create substantial risks; leg-length discrepancy and persistent mechanical pain can restrict the joint's range of motion (Meng et al., 2022).

Patients with hip diseases that produce chronic pain, discomfort, and substantial impairment in daily activities can almost always consider hip joint replacement (THR) as a treatment option. Several assessment instruments have been applied to establish long term results following operative procedures such as HJR. The Harris hip score (HHS) remains the tool applied most frequently in clinical practice for documenting preoperative hip status and assessing postoperative result following THR. The physician physical examination component and the patient-reported outcome component together constitute the standard HHS. Traditionally, HHS has been among common scoring tools and is increasingly regarded as a reliable and valid tool for measuring functional outcome after THR (Wod et al., 2024).

For hip replacement patients, nursing instructions and exercise training improve functional outcomes by increasing muscle strength and joint mobility while supporting the performance of activities of daily living (ADLs). For patients, greater independence, less pain, and reduced susceptibility to deep vein thrombosis and other complications can result from preoperative education, consistent postoperative guidance, and structured rehabilitation programs (Yin et al., 2022).

Exercise training is essential for optimal recovery after total hip replacement surgery, as it is closely tied to improved functional outcomes. The exercise training for total hip replacement primarily concentrates on strengthening the muscles surrounding the impacted joint and enhancing joint stability (Di Du et al., 2023).

Preventing complications through preoperative nursing care is one of the nurse's vital roles. The nurses familiarize patients with the immediate postoperative environment, teach deep breathing and coughing techniques to prevent respiratory complications like atelectasis, and demonstrate crucial joint protection precautions such as avoiding hip flexion beyond 90 degrees or crossing the legs (Wang and Dan., 2026). Furthermore, introducing patients to basic bed mobility maneuvers and the rationale for early ambulation before they enter the operating room significantly enhances postoperative self-efficacy and adherence to physical rehabilitation pathways. Consequently, preoperative nursing care not only stabilizes the patient's anxiety but directly reduces incidence of complications, ensuring a safer transition into the surgical and recovery phase (Liu et al., 2021).

Significance of the study

From January 2025 to September 2025, Trauma Department at Assiut University Hospitals recorded approximately (160) cases of hip joint replacement during that period (Assiut University Hospital records, 2025) also, hip joint replacement is one of the most frequently performed orthopedic procedures for patients with severe hip disorders, aiming to relieve pain, restore joint function, and improve quality of life. Despite advances in surgical techniques, many patients continue to experience postoperative challenges, including pain, limited mobility, muscle weakness, and difficulties in performing activities of daily living. These challenges may delay functional recovery and increase the risk of postoperative complications (Xie et al., 2025). Accordingly, the researchers undertook this study to evaluate how nursing instructions and exercise training affected functional outcomes among patients undergoing hip joint replacement.

Aim of the study

General objective:

To evaluate the impact of nursing instructions and exercises training on functional outcomes for patients undergoing hip joint replacement.

Specific objectives:

- Assessing patient's level of knowledge regarding hip joint replacement.
- Implement nursing instructions and exercises training for patients undergoing hip joint replacement.
- Evaluate the impact of nursing instructions and exercises training on functional outcomes for patients undergoing hip joint replacement.
- Examine the relationship between patients' knowledge and functional outcomes following hip joint replacement.

Hypothesis:

To address the study aim, the researchers formulated a hypothesis as stated below.

- Mean post-test knowledge scores are expected to be higher among study group patients than among control group patients.
- Compared with control group patients, study group patients receiving nursing instructions and exercises training are expected to achieve greater gains in functional outcomes.

Operational definitions:

Nursing instructions: is defined as the systematic application of skills by nursing personnel to deliver structured learning interventions, thereby enhancing patients' health literacy and fostering adaptive self-care behaviors.

Functional outcomes: measurable capacity of a patient that supports completion of daily activities and tasks involving physical or cognitive actions following surgery, a therapeutic intervention, or medical condition.

Hip Joint Replacement: a surgical technology in which an artificial joint substitutes for the hip joint. Either a total hip replacement or a hemi replacement may be performed during HJR surgery.

Patients and methods:

Research design:

This study employed a Quasi experimental research design methodology.

Setting:

The study was conducted at trauma department on the fourth floor at Trauma Hospital Assiut University Hospitals served as the study setting, where the trauma inpatient departments are located. The fourth floor consists of two separate inpatient sections: a male trauma section and a female trauma section. Each section has a capacity of 20 beds on the fourth.

Sample:

A Convenience sampling of 60 patients was scheduled for total hip replacement who were aged (20-65) years, attended the trauma department. They were randomly divided into 2 groups by flipping a coin [tails = control group (30 patients), heads= intervention group (30 patients)]. Nursing instructions and exercises training was applied to the intervention group (teaching booklet), while the control group received routine hospital care.

Sample size:

Required sample size was estimated through a power analysis based on a previous study comparing two means, with a confidence level of 95% and power analyses of 80%. Sample size estimation used 0.05, a difference of 2.1 between two means, and standard deviations of 2.5 for the study group and 3.2 for the control group; 30 cases per group were required.

Tools:

Data collection relied on the following specified tools:

Tool (I): Patient assessment sheet:

This tool was developed by the researchers based on the literature review to assess patient's condition. It consisted of three parts:

Part (1): Demographic data: such as (age, gender, marital status, level of education, occupation and residence).

Part (2): Medical data: (Medical diagnosis, type of hip joint replacement, comorbidities, mechanism of injury, affected side).

Part (3): Patient's knowledge assessment: A structured questionnaire developed by the researchers to assess the patient's understanding of:

- Definition of total hip replacement.
- Indication of total hip replacement.
- Complications of total hip replacement.
- Post-operative hip precautions (e.g., avoiding crossing legs, bending the hip more than 90 degrees).
- Use of assistive devices postoperatively.
- Types and importance of muscle strengthen exercise.
- Incision care and signs of wound infection.
- The importance of medication adherence (especially anticoagulants).
- When to seek immediate medical help.

Scoring system:

The questionnaire contained (21) questions in total. Before implementation of nursing instructions and exercises training, this questionnaire part specifically measured the baseline knowledge of patients undergoing hip joint replacement. The same assessment tool

evaluated the gain in knowledge at (3 and 6 month postoperatively) after implementation of the nursing teaching protocol. Each item received (2) marks for a correct answer, (1) mark for a partially correct answer, and (0) for an incorrect answer. The total score was (42). A score of more than 60% indicated satisfactory knowledge, while a score of less than 60% indicated unsatisfactory knowledge.

Tool (II): Harris Hip Score (HHS); the Harris Hip Score was developed by (**Damasio et al., 2025**). This validated tool measures an individual's functional status and traditionally supports clinical evaluation of patients who present with hip pathologies in routine practice and across long-term follow-up.

Scoring system:

Across thirteen items, four domains are assessed: pain (44 points), function (47 points), range of motion (5 points), and deformity (4 points); the maximum total is 100. A higher score signals a better outcome with reduced dysfunction; classifications are <70 poor, 70-79 fair, 80-89 good, and 90-100 excellent.

Nursing instructions and exercises training for patients undergoing hip joint replacement (teaching booklet): Drawing on national and international literature, the researchers developed this tool using (**Wod et al., 2024**) and (**Liang et al., 2020**) reference and (**Mahmoud et al., 2024**). Simple Arabic and illustrative images were used to present the relevant knowledge content:

• **Part 1:** Nursing instructions about definition of hip joint replacement, preoperative preparation, body position, pain management, nutrition, wound care, use of assistive devices, time of weight bearing, prevention of complication, incision care and signs of wound infection, the importance of medication adherence (especially anticoagulants) and when to seek immediate medical help.

• **Part 2:** Exercises training about coughing and breathing exercise, range of motion and muscle strengthen exercise.

Content validity:

Five experts established content validity through their panel evaluation: three were faculty members from the Department of Medical-Surgical Nursing, and two were orthopedic surgeons at Assiut University. Experts assessed the instrument for clarity, simplicity, relevance, comprehensiveness, understandability, and applicability during their formal review. Based on their feedback, the necessary modifications were made to enhance the instrument's validity and suitability for the study.

Reliability of the used tool:

Following a Total Hip Replacement (THR), the Harris Hip Score (HHS) remains a highly reliable and valid tool for assessing hip function and pain in affected patients. Across multiple global translations, it shows excellent test-retest reliability and strong internal consistency, with Cronbach's alpha commonly ranging from 0.74 to 0.92.

Pilot study:

To evaluate the clarity, feasibility, and applicability of the study tools and identify possible data collection difficulties, a pilot study involved 10% of the study sample (6 patients) at trauma department at Trauma Hospital Assiut University Hospitals before the main study formally began. Results of the pilot study prompted the researchers to introduce revisions that enhanced the final study tools as needed. Those who participated in the pilot study did not enter the final study sample.

Ethical consideration:

On September 21, 2025, the Ethics Committee of the Faculty of Nursing at Assiut University granted formal approval for this study (Approval No1120251175). To enable data collection, the Dean of the Faculty of Nursing issued official clearance, which was then sent onward to the Head of the Trauma Department. Before implementation, nursing supervisors and surgeons were briefed on study procedures and objectives so cooperation could be secured. Oral consent followed a full account describing the study's nature and purpose; participants provided it, or legal guardians acted on their behalf. Participants received explicit

assurances of strict confidentiality and data privacy, with emphasis placed on their right to withdraw from the study at any time without penalty or explanation. The study protocol exposed participants to no identified risks.

Procedure:

- Data collection for the current study was conducted from end of September 2025 to the end of November 2025. In addition, participants in both the study and control groups were followed postoperatively for a period of six months. The follow-up period was completed in May 2026.

- Researchers began the preparatory phase by developing the data collection tools and nursing teaching protocol (teaching booklet) after reviewing extensively the relevant national and international literature, drawing on nursing and medical textbooks, scientific journals, and online resources. To support implementation and improve the nursing teaching protocol's effectiveness for study participants, the researchers organized the teaching environment and chose educational media and teaching aids suitable for the task, including pictures, videos, demonstrations, and the teaching booklet, for use throughout the intervention period.

- Eligible patients met individually with the researchers before data collection so rapport could be established, the study's nature and purpose explained, and participation formally invited. Before data collection, oral informed consent was provided by every patient choosing to join after receiving the required explanation.

- By interacting individually with every patient, the researchers could tailor communication while supplying suitable assistance for the full study period.

- Using Tool I, the researchers obtained baseline preoperative data by conducting a separate individual interview for every patient.

- The control group received the routine regular or routine hospital care, whereas the study group received the same regular or routine care in addition to the implemented nursing instruction and exercise training. Every study group patient received a personal copy of the educational booklet to strengthen the provided instructions, encourage recommended care

practices, and support continued use during recovery.

- The exercise program included the following: quadriceps sets, gluteal sets, ankle pumps, heel slides, straight leg muscle activation exercise and hip abductor strengthening. Duration: approximately 5–10 seconds, followed by relaxation. Repetitions: 10 repetitions per session.

- Patients received the nursing instruction and exercise training through two separate structured educational sessions delivered sequentially.

- Within 24 hours after admission to trauma department at Assiut University Hospital, the first session began.

- At the first session, each patient underwent an individual interview. Tool (1) (pretest) recorded demographic data, medical data, and each patient's understanding of hip joint replacement. Next, functional outcome was assessed with the second tool (pretest) (preoperatively) during this stage. The researcher then delivered nursing instruction covering preoperative preparation, nutrition, smoking cessation, and training in coughing and breathing exercise for every study patient involved.

- The second session began postoperatively. During it, the researcher gave post-surgery instructions on maintaining body alignment, pain management, wound dressing care, walking with a walker, and when weight bearing could begin. Precautions to prevention of dislocation included not bending the hip beyond 90 degree, not twisting the operated side inward, keeping the operated limb uncrossed, using a raised toilet seat, and placing a pillow between the legs during sleep. Instruction also covered incision care and signs of infection, medication adherence (especially anticoagulants for deep vein thrombosis prevention), range of motion, and muscle strengthening exercise; patients were asked to demonstrate these exercise.

- Each session lasted approximately 20-30 minutes and included an additional five-minute period allocated for clarification, discussion, and answering patients' questions.

- The educational sessions were scheduled during both morning and afternoon

shifts to accommodate patients' availability and ensure effective implementation of the nursing teaching protocol.

- One family member was allowed to attend each educational session to provide support and enhance the patient's understanding and adherence to the provided instruction

- A six-month postoperative follow-up covered every patient across the two groups during the full observation period, enabling progress monitoring and evaluation of the study outcomes.

- At three and six months postoperatively, Tool I (Part 3) and Tool II were used to assess patients' knowledge and functional outcomes concerning hip joint replacement.

- During hospitalization, the researchers interview and contact with patients through regular visits to the trauma department. After discharge, postoperative follow-up was continued through telephone contact and scheduled visits to the trauma outpatient clinic.

Statistical analysis:

Using the Anderson–Darling test, researchers checked the collected data for normality of distribution and homogeneity of variance before performing additional statistical analyses. Continuous variables were summarized by mean and standard deviation (Mean $\pm$ SD); in contrast, frequencies and percentages (N, %) described categorical variables. Between-group comparisons of categorical variables used either the Chi-square test or, where appropriate, Fisher's exact test. Comparisons involving continuous variables applied both the independent-samples t-test and analysis of variance (ANOVA). A two-tailed p-value of < 0.05 was deemed statistically significant. Pearson's correlation coefficient quantified variable relationships for the subsequent statistical analysis. All statistical analyses were performed using IBM SPSS Statistics version 23.

Results:

Part I: Demographic data of the studied patients:

Table (1): Comparison between the study and control groups regarding -

demographic data (n= 60).

Participants aged 50-65 years represented (83.3%) in the study group and control group (73.3%), as shown in this table for each sample. Female participants predominated in the study group (63.3%) and control group (80.0%); most were also married within both groups (83.3% and 73.3% respectively). Regarding educational level, secondary education was reported (36.7%) in the study group compared to control group (63.3 %). Employment characterized the majority across the two groups represented (66.7% and 60.0% respectively), while rural residence was also common (80.0% and 66.7% respectively).

Part II: medical data of the studied patients:**Table (2): Distribution of medical data among study and control group n=60**

As the table indicates, femoral neck fracture was the leading diagnosis for both the study group (66.7%) and control group (56.7% respectively). Of participants, 63.3% in the study group and 56.7 % in the control group received total hip replacement, exceeding half in each. Across the two groups, hypertension predominated as a comorbidity, recorded at 16.7% and 20% respectively. A right-sided injury affected within the study group (56.7%), whereas a left-sided injury characterized most of the control group (66.7%). Falling on the ground was the principal mechanism of injury leading to hip fracture in the two groups, accounting for 86.7% and 80.0% respectively among all recorded cases.

Part III: Patient's knowledge assessment:**Table (3): Comparison between study and control group regarding total patient knowledge score during three program phases (Preoperative, 3 months postoperative and 6 months postoperative (n=60))**

Before nursing instruction implementation, unsatisfactory knowledge levels affected the study group at 96.67% and the control group at 83.33%, according to the table. At both 3 and 6 month follow-up periods, the intervention group achieved a highly statistically significant difference in total knowledge scores versus the control group after the intervention, with p. value =0.001**. Following implementation, the nursing

instruction produced substantial documented gains in patient knowledge across the observation period.

Figure (1): The study group were have satisfactory knowledge score level following the implementation of nursing instruction at 3 and 6month postoperatively represented (70 and 53.33% respectively).while the control group have unsatisfactory knowledge score level at 3 and 6month postoperatively (60 and 80% respectively).

Part IV: Assessment of patient's functional outcomes using Harris Hip Score (HHS):

Table (4): Comparison between study and control group related to Harris Hip Score (HHS) during three program phases (Preoperative, 3 months postoperative and 6 months postoperative (n=60):At 3 months postoperatively, mean Harris Hip Score was fair in the study group and poor in the control group; the difference reached high statistical significance (p. value =<0.001**). At the 6 months postoperative follow-up, the two groups again differed at a high level of statistical significance: mean HHS attained a good rating for the study group, while a poor rating persisted for the control group.

Part V: correlations:**Fig: (2): Correlation between Harris Hip Score (HHS) and total knowledge score at 3 months postoperative (n=60)**

This figure demonstrated that; there is statistically significant positive correlation between total knowledge score and HHS among the study group

3 months postoperatively (p value=0.031*). By contrast, this correlation was not statistically significant in the control group.

Fig: (3): Correlation between Harris Hip Score (HHS) and total knowledge score at 6 months postoperative (n=60)

At 6 months postoperatively, this figure identified a Positive correlation between Harris Hip Score (HHS) and total knowledge score in the study group (p value= 0.003*); no statistically significant correlation appeared in the control group.

Table 1: Comparison between the study and control groups regarding demographic data (n= 60).

Variables	Study		Control		p.value
	N =30	%	N =30	%	
Age by years					
30<40 yrs	0	0.0	3	10.0	.034*
40<50 yrs	8	26.7	2	6.7	
50<65 yrs	22	73.3	25	83.3	
Sex					
Male	11	36.7	6	20.0	.252 ns
Female	19	63.3	24	80.0	
Marital status					
Single	0	0.0	3	10.0	.182 ns
Married	25	83.3	22	73.3	
Divorce	1	3.3	3	10.0	
Widow	4	13.3	2	6.7	
Education level					
Literature	6	20.0	2	6.7	.170 ns
Read and write	11	36.7	7	23.3	
Secondary	11	36.7	19	63.3	
University	2	6.7	2	6.7	
Occupation					
Working	18	60.0	20	66.7	.789 ns
Not working	12	40.0	10	33.3	
Residence					
Rural	24	80.0	20	66.7	.382 ns
Urban	6	20.0	10	33.3	

Chi square test for qualitative data between the two groups

**Significant level at P value < 0.05, **Significant level at P value < 0.01*

Table 2 : Comparison between the study and control groups regarding medical data (n = 60).

Variables	Study		Control		p.value
	N =30	%	N =30	%	
Medical diagnosis					
Femoral neck fracture	17	56.7	20	66.7	0.426 ns
trochanteric fracture	13	43.3	10	33.3	
Type of hip joint replacement					
Total hip replacement	19	63.3	17	56.7	0.598 ns
Partial hip replacement	11	36.7	13	43.3	
Comorbidities					
Hypertension	6	20.0	5	16.7	0.919
Diabetes mellitus	2	6.7	2	6.7	
Pulmonary disease	0	0.0	1	3.3	
kidney disease	2	6.7	2	6.7	
Hypertension and Diabetes mellitus	1	3.3	2	6.7	
Non	19	63.3	18	60.0	
Affected side					
Right	17	56.7	10	33.3	.119ns
Left	13	43.3	20	66.7	
Mechanism of injury					
FOG	24	80.0	26	86.7	.893 ns
FFH	2	6.7	1	3.3	
MCA	1	3.3	1	3.3	
RTA	3	10.0	2	6.7	

Chi square test for qualitative data between the two groups

**Significant level at P value < 0.05, **Significant level at P value < 0.01*

Table 3: Comparison among studied groups regarding patients knowledge about hip joint replacement (n=60)

Patients knowledge score levels	Study		Control		X ² /T	P. value
	No	%	No	%		
Preoperative						
Unsatisfactory	29	96.67	25	83.33	2.96	0.085
Satisfactory	1	3.33	5	16.67		
Mean±SD	18.63±3.78		19.2±5.15		T=0.48	0.629
2 week postoperative						
Unsatisfactory	9	30.00	18	60.00	5.45	0.020*
Satisfactory	21	70.00	12	40.00		
Mean±SD	28.8±6.05		19.57±7.74		5.14	<0.001**
3 months postoperative						
Unsatisfactory	14	46.67	24	80.00	4.80	0.028*
Satisfactory	16	53.33	6	20.00		
Mean±SD	25.17±4.97		16.5±7.32		5.36	<0.001**

Chi square test for qualitative data between the two groups

Independent T-test quantitative data between the two groups

*Significant level at P value < 0.05, **Significant level at P value < 0.01

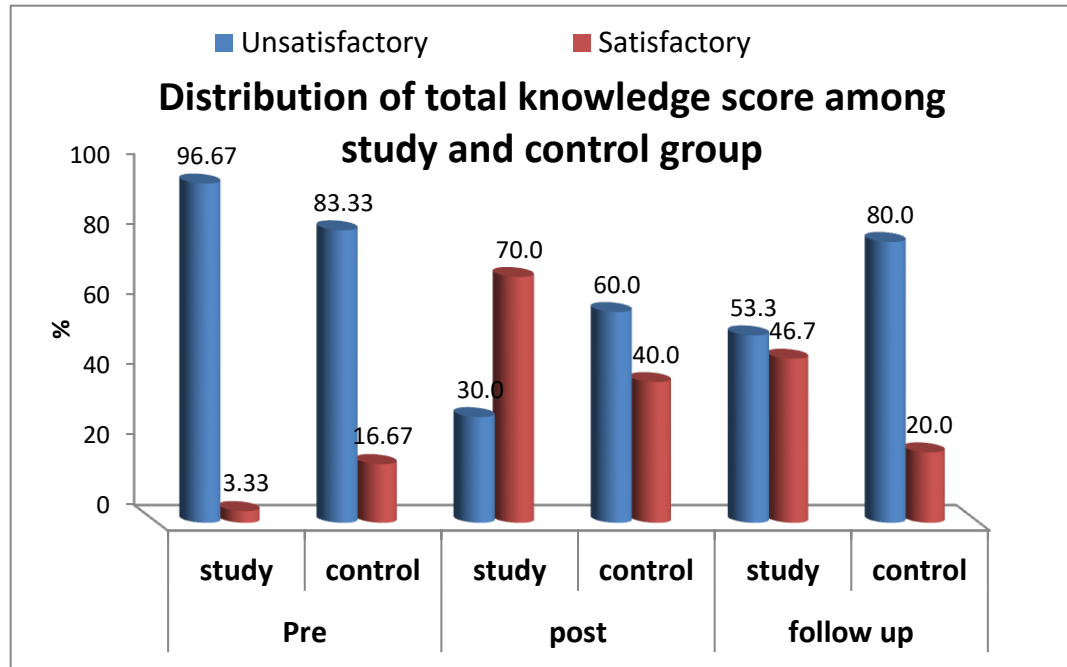


Fig. 1 :Total patient knowledge score levels among study and control group as regarding hip joint replacement (n= 60).

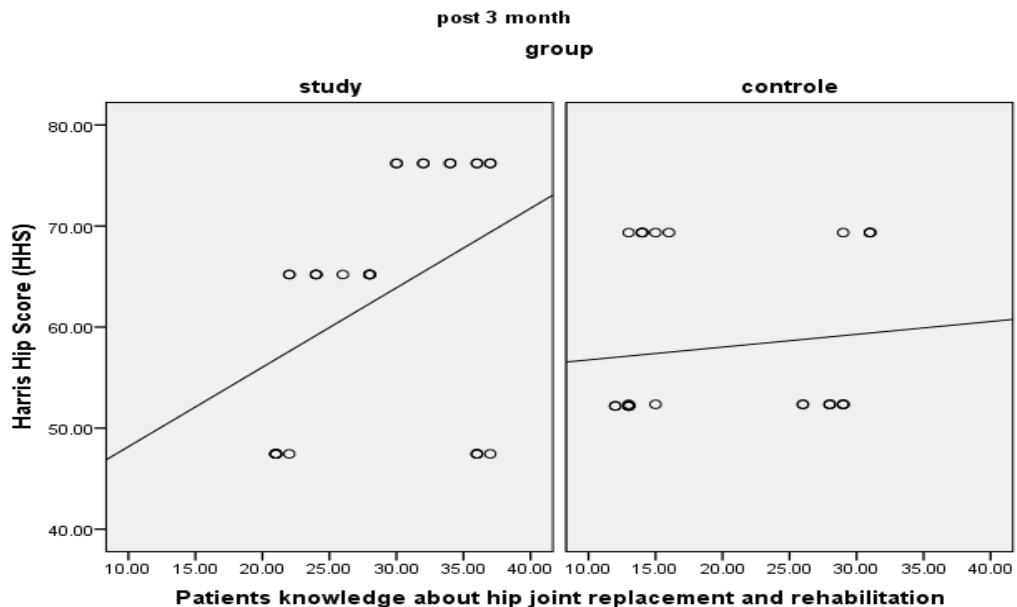
Table 4 :Comparison between study and control group related to Harris Hip Score (HHS) during three program phases (Preoperative, 3 months postoperative and 6 months postoperative (n=60)

Harris Hip Score (HHS)	Study		Control		X2/T	P. value
	No	%	No	%		
Pre						
Poor	30	100.0	30	100.0	-	-
Fair	0	0.0	0	0.0		
Good	0	0.0	0	0.0		
Excellent	0	0.0	0	0.0		
Mean±SD	23.95±3.6		9.5±3.17		16.48	0.000
post 3 month						
Poor	9	30.0	30	100.0	12.00	<0.001**
Fair	17	56.7	0	0.0		
Good	3	10.0	0	0.0		
Excellent	1	3.3	0	0.0		
Mean±SD	62.95±12.05		57.97±8.19		1.87	0.066
post 6 month						
Poor	1	3.3	20	66.7	40	<0.001**
Fair	4	13.3	10	33.3		
Good	16	53.3	0	0.0		
Excellent	9	30.0	0	0.0		
Mean±SD	88.98±10.79		62.95±12.05		8.81	<0.001**

Chi square test for qualitative data between the two groups

Independent T-test quantitative data between the two groups

*Significant level at P value < 0.05, **Significant level at P value < 0.01

**Fig: 2:** Comparison between Harris Hip Score (HHS) for study and control group with total patients knowledge 3 months postoperative (n=60)

-r. pearson correlation

-Person correlation test *Significant level at P value < 0.05

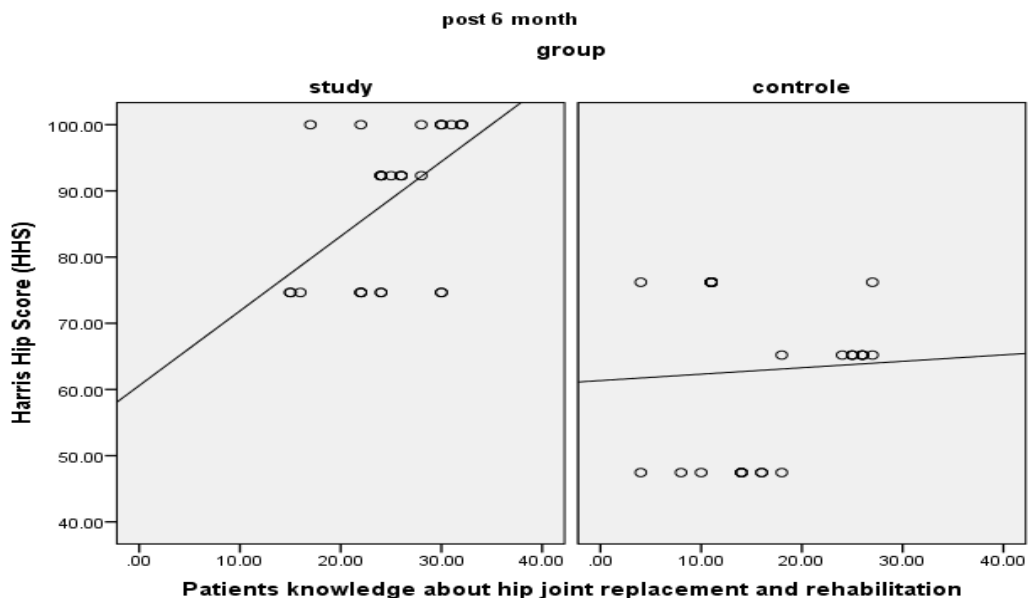


Fig: 3 :Comparison Harris Hip Score (HHS) for study and control group with total patients knowledge 6 months postoperative (n=60)

- *Person correlation test*

**Significant level at P value < 0.05*

Discussion:

Among orthopedic procedures used for severe hip joint disorders, Total Hip Arthroplasty (THA) is widely performed and achieves considerable success in relieving pain, restoring mobility and function, and improving quality of life among affected patients. Despite surgical advancements, the ultimate functional outcome depends heavily on the postoperative rehabilitation process and patient compliance. Patients often experience pain, fear of movement (kinesiophobia) and joint dislocation precautions (Li et al., 2025)

Against this background, researchers in the current study evaluated how nursing instructions and exercise training influence overall functional outcomes among patients undergoing hip joint replacement, which constituted the central objective.

The principal findings are discussed in the following sequence:

Demographic characteristics and medical data:

With respect to the demographic characteristics of the studied participants, most patients undergoing hip joint replacement had ages clustered in the late fifty and sixty years, and females accounted for the larger proportion of the sample. The age and gender distribution is consistent with (Longo et al., 2022), which found that two thirds belonged to the age group between fifty and sixty years and that females predominated across the study group and control group. From the researcher's perspective, the high female proportion across the two groups may reflect the predominance of conditions such as osteoarthritis and osteoporosis among older adults, especially among postmenopausal women in this population. This finding was in disagreement with the result by (Mahmoud et al., 2024) who revealed that the majority of patients were males.

Concerning the medical diagnoses, the vast majority were diagnosed with femoral neck fractures. Agreement with (Li et al., 2025) is evident because that study reported that femoral neck fracture and trochanteric fractures accounted for more than two thirds across the study group and control group. **From the**

opinion of the researcher, as end-stage osteoarthritis remains the leading indication for total hip replacement (THR) due to progressive joint pain and loss of physical function.

Concerning type of hip joint replacement, a majority of the study group and more than two thirds of the control group received total hip replacement in this investigation. This finding agrees with **(Mohammed et al., 2023)**, which clarified that Total Hip Arthroplasty (THA) was received by most participants in the studied sample, whereas a minority underwent Hemiarthroplasty. In contrast, **(Sheng and Wang., 2025)** reported that partial arthroplasty treated most members of the third group, a pattern contrary to our study. The researcher's view is that THA is selected for degenerative joint diseases such as osteoarthritis to provide lasting pain relief and complete biomechanical restoration; by contrast, acute traumatic fractures in older adults often warrant hemiarthroplasty.

Data on mechanism of injury showed that ground-level falls accounted for most cases among the elderly participants included in this study. Existing literature supports this result: **(Xie et al., 2025)** identified ground-level falls as the leading cause of hip fractures among elderly people whose condition required arthroplasty treatment in this population. From the researcher's perspective, age-related gait instability, muscle weakness, and bone fragility substantially increase susceptibility among elderly patients to low-energy fall-related fractures.

Patient`s knowledge assessment:

Concerning total knowledge level of studied patients, the present study demonstrated that, a substantial improvement in post-intervention knowledge score at three and six months postoperatively compared to baseline levels preoperatively. Before nursing instructions were implemented, unsatisfactory knowledge affected a substantial majority of the patients across both groups, especially in relation to joint protection techniques and correct weight-bearing progression during recovery. **From opinion of researchers**, the orthopedic patients often receive fragmented or overly complex clinical information prior to

surgery, leaving them ill-prepared for home-based rehabilitation and the absence of routine provision of written information regarding surgical procedures.

Consistency with **(Meng and Yu., 2022)** was also observed; after a nurse-led, telehealth- and AI-driven patient education program, that study reported a highly statistically significant difference in knowledge level between the study group and control group at six months post-intervention.

Assessment of functional outcomes

Regarding Harris Hip Score (HHP), at three months postoperatively the study group recorded a fair mean Harris Hip Score, whereas the control group had a poor score; the difference reached high statistical significance. At six months postoperatively, the two groups again differed at a high level of statistical significance: mean HHS attained a good rating for the study group, whereas a poor rating persisted for the control group. **From the opinion of the researcher**, this improvement suggests that the intervention facilitated earlier rehabilitation, postoperative functional recovery, improved pain control, enhanced muscle strength, greater joint stability, and earlier restoration of hip range of motion likely contributed to better functional performance. In contrast, patients in the control group exhibited persistently poor HHS, suggesting slower recovery and continued functional limitations. The progression of the study group from fair functional status at 3 months to good functional status at 6 months reflects the cumulative benefits of the intervention on rehabilitation outcomes.

Support for this finding came from **(Longo et al., 2022)**, which reported that patients' total Harris Hip Score (HHS) showed a highly statistically significant improvement after the nursing instructions and structured exercise training were implemented, relative to the measured pre-intervention baseline levels. Further consistent evidence was provided by **(Abozead et al., 2024)**, which confirmed the high reliability of the Harris Hip Score and emphasized that structured post-operative nursing interventions and progressive rehabilitation are essential for achieving

optimal, long-term functional recovery after total hip replacement over time.

Assessment of the relationship between Harris hip score and knowledge assessment showed a statistically significant positive correlation linking patients' knowledge assessment with their functional recovery; the Harris Hip Score (HHS) supplied the measure at both three and six months postoperatively within the intervention group. From the researcher's perspective, this improvement demonstrates that structured nursing instructions and targeted exercise training are critical to optimizing outcomes after total hip replacement for these patients. Educating patients empowers them to adhere more effectively to rehabilitation protocols, correctly execute therapeutic exercises, and avoid hip dislocation precautions. These results align with (Chen et al., 2026) which emphasize that preoperative and early postoperative patient education directly enhances patient engagement, reduces kinesiophobia (fear of movement), and accelerates physical function recovery.

Also, this finding match with (Zhang et al., 2026) who confirming that higher levels of knowledge were associated with better functional outcomes following hip joint replacement. This finding suggests that patients who had a better understanding of postoperative care, rehabilitation exercises, joint protection techniques, and activity modifications were more likely to achieve improved hip function and mobility. Adequate knowledge may enhance patients' adherence to prescribed nursing instructions and exercise programs, leading to reduced complications, increased confidence in performing daily activities, and faster functional recovery.

Conclusion:

The findings of this study showed that providing structured nursing instructions combined with exercise training has a positive impact on the functional outcomes of patients undergoing hip joint replacement. Patients who received comprehensive education and guided exercise programs demonstrated improved mobility, greater independence in performing activities of daily living, enhanced adherence to

rehabilitation protocols, and higher overall recovery outcomes.

Recommendations:

On the basis of this study's findings, the following recommendations are proposed:

For patients

- Structured nursing instructions and exercise training programs should be incorporated into the routine care of patients undergoing hip joint replacement.
- Standardized educational materials, including booklets and visual resources, should be made available to support patient learning.

For nurses

- Nurses should provide individualized preoperative and postoperative education to improve patients' knowledge, promote adherence to rehabilitation exercises, and enhance self-care practices.
- Ongoing nurse training in patient education and rehabilitation should be assured by healthcare institutions to strengthen professional competencies.
- Multidisciplinary collaboration among nurses, physicians, and physiotherapists is essential to optimize functional recovery and improve patients' quality of life.

For research

- Future research should recruit larger samples drawn from diverse patient populations to assess the long-term effects of nursing educational interventions and exercise training on functional outcomes.

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