

Enhancing Activities of Daily Living and Quality of Life among Patients with Post-Operative Hip Replacement Surgery

Daily Living and Quality of Life among Hip Replacement Surgery

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ABSTRACT

Objective: To determine the effect of clinical practice guidelines on enhancing activities of daily living and quality of life in post-operative hip surgery patients.

Study Design: A quasi-experimental study

Place and Duration of Study: This study was conducted at the Orthopedic Ward, Kishwar Fazal Teaching Hospital Lahore, Pakistan from 1st May 2025 to 31st December 2025.

Methods: A quasi-experimental study design was employed involving 40 patients undergoing hip replacement surgery. Participants were purposively sampled and divided into experimental and control groups. The experimental group received interventions based on clinical practice guidelines. Data were collected using structured questionnaires assessing activities of daily living and quality of life. Higher scores indicated greater functional limitation for activities of daily living and better perceived quality of life. The reliability of the tools was confirmed with a Cronbach's alpha of 0.912.

Results: The intervention group demonstrated significant improvements in independence in daily activities and overall quality of life compared to the control group. Implementation of clinical practice guidelines facilitated better physical mobility, reduced functional limitations, and enhanced emotional well-being.

Conclusion: Application of evidence-based clinical practice guidelines significantly improves post-operative recovery in hip replacement patients by enhancing activities of daily living and overall quality of life. Incorporating structured rehabilitation protocols into routine post-operative care is recommended to promote patient independence and holistic well-being.

Key Words: Hip replacement, Rehabilitation, Activities of daily living, Quality of life, Post-operative care, Clinical practice guidelines

Citation of article: Sultana K, Saifullah M, Mukhtar M. Enhancing Activities of Daily Living and Quality of Life among Patients with Post-Operative Hip Replacement Surgery. Med Forum 2026;37(8):54-58. doi:10.60110/medforum.370810.

INTRODUCTION

Hip joint disorders such as fractures, osteoarthritis, dislocation, and avascular necrosis (AVN) commonly impair mobility and functional independence, often necessitating hip replacement surgery. Hip fractures represent a major global health concern, particularly among older adults. Epidemiological projections estimate that approximately 6.26 million individuals worldwide will experience hip fractures annually by 2050, with a cumulative one-year mortality rate approaching 30%.¹

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Received: April, 2026

Reviewed: May-June, 2026

Accepted: July, 2026

Hip replacement surgery is widely performed to restore mobility and alleviate chronic pain associated with degenerative hip diseases such as osteoarthritis and rheumatoid arthritis.² Although the procedure is highly effective, patients frequently encounter significant post-operative challenges, including reduced mobility, persistent pain, and diminished quality of life. These difficulties underline the importance of comprehensive post-operative rehabilitation strategies.³

Globally, hip disorders rank among the top ten musculoskeletal conditions contributing to disability-adjusted life years.⁴ In the United States alone, more than 450,000 hip replacement surgeries are performed annually, and this number continues to rise due to population aging.⁵

In Pakistan, the burden of hip disorders is increasing, particularly among the elderly population. Approximately 8.7% of individuals aged 60 years and above suffer from hip-related mobility problems requiring surgical intervention.⁶ Limited access to physiotherapy services and pain management resources in rural regions further compromises recovery outcomes.⁷ Although urban centers such as Lahore and Karachi report improved post-operative outcomes, gaps

remain in structured rehabilitation programs nationwide.⁸

Quality of life is a multidimensional concept encompassing physical, emotional, and social well-being. Reduced QoL following hip surgery negatively affects social participation, psychological health, and overall life satisfaction.⁹ The World Health Organization emphasizes early mobilization, functional recovery, pain management, and patient education as core components of effective post-operative rehabilitation.¹⁰

Nurses play a critical role in implementing clinical practice guidelines through patient education, pain control, physical exercises, and continuous monitoring. Nursing-led interventions have demonstrated positive effects on improving ADLs and reducing post-operative discomfort.¹¹ However, limited research exists in Pakistan regarding the effectiveness of WHO-based clinical practice guidelines on long-term ADL and QoL outcomes following hip replacement surgery. This study addresses this gap.

METHODS

A quasi-experimental study design with control and experimental groups was conducted to evaluate the effect of a nurse-led intervention on activities of daily living (ADL) and quality of life (QOL) among patients undergoing hip replacement surgery. The study was carried out in the Orthopedic Ward of Kishwar Fazal Teaching Hospital, Lahore from 1st May 2025 to 31st December 2025 vide letter UOL/IREB/25/07/0046 dated 17th March 2025. A total of 40 participants selected through purposive sampling and equally divided into experimental and control groups. Data were collected using a demographic questionnaire, an adopted Daily Activity Questionnaire, and the WHOQOL-BREF tool to assess functional ability and quality of life. Baseline (pre-intervention) data were obtained, followed by the implementation of a structured nurse-led intervention program in the experimental group, while the control group received routine care. The intervention included pre-operative education and progressive post-operative rehabilitation sessions focusing on mobility, exercises, and self-care. Post-intervention assessment was conducted to evaluate outcomes. Data were analyzed using SPSS version 25, employing descriptive statistics and non-parametric tests, including Wilcoxon Signed-Rank and Mann-Whitney U tests, with significance set at $p < 0.05$.

RESULTS

The majority of participants in both groups were aged between 31-50 years (45% each), followed by 16-30 years and 51-70 years. In terms of occupation, most participants in the control group were working (70%), whereas the experimental group had an equal distribution of working and non-working individuals

(50% each). Regarding gender, males constituted the majority in both groups. Most participants had a height between 5.0-6.0 feet and a weight range of 50-70 kg. Avascular necrosis (AVN) was the most common diagnosis in both groups, followed by fractures. Additionally, caregiving support differed between groups, with wives being the primary caregivers in the control group, while husbands were more commonly reported as caregivers in the experimental group. Overall, the demographic and clinical characteristics were relatively comparable between the two groups (Table 1).

Table No. 1: Demographic and clinical characteristics of participants (N = 40)

Variable	Control Group	Experimental Group
Age (years)		
16-30	5 (25%)	6 (30%)
31-50	9(45%)	9 (45%)
51-70	6(30%)	5 (25%)
Occupation		
Working	14 (70%)	10 (50%)
Non-working	6 (30%)	10 (50%)
Gender		
Male	14 (70%)	13 (65%)
Female	30 (30%)	7 (35%)
Caregiver		
Wife	13 (65%)	4 (20%)
Daughter	3 (15%)	4 (20%)
Others	1 (5%)	-
Height (ft)		
5.0-6.0	17 (85%)	19 (95%)
6.1-7.0	3 (15%)	1 (5%)
Weight (kg)		
50-60	8 (40%)	9 (45%)
61-70	8 (40%)	8 (40%)
71-80	4 (20%)	3 (15%)
Diagnosis		
AVN	14 (70%)	15 (75%)
Fracture	6 (30%)	5 (25%)

Most patients in both groups had severe difficulty in performing activities of daily living, with no patients reporting mild or minimal difficulty. After the intervention, the control group showed no improvement, as all patients remained in the severe category. In contrast, the experimental group demonstrated significant improvement, with patients shifting to mild (60%) and minimal (40%) difficulty levels. Overall, the intervention proved effective in improving patients' functional ability, while routine care showed no impact (Table 2).

Table 3 indicates that before the intervention, there was no significant difference in the level of difficulty in daily living activities between the control and experimental groups ($p=0.217$). However, after the

intervention, a statistically significant difference was observed ($p=0.000$), with the experimental group showing greater improvement (lower median score) compared to the control group, demonstrating the effectiveness of the intervention.

Most patients in both groups had poor quality of life. After the intervention, the control group showed slight improvement, with some patients moving to a moderate level, but many still remained in the poor category. In contrast, the experimental group demonstrated marked improvement, with no patients in poor or very poor categories and a majority shifting to good (65%) and moderate (35%) quality of life. This indicates that the intervention was highly effective in improving patients' quality of life compared to the control group (Table 4).

Table 5 indicates that before the intervention, there was no significant difference in quality of life between the control and experimental groups ($p=0.152$). However, after the intervention, a statistically significant difference was observed ($p=0.000$), with the experimental group showing greater improvement (higher median score) compared to the control group, highlighting the effectiveness of the intervention in enhancing quality of life. There was no statistically significant association between difficulty in daily living activities and quality of life in both control and experimental groups before and after the intervention ($p>0.05$). Although a negative correlation was observed in most cases, indicating that higher difficulty may be related to lower quality of life, these relationships were not statistically significant (Table 6).

Table No. 2: Comparison of frequency distribution of Level of activities of daily living of control group and experimental group patients before and after intervention (n=40)

Level of difficulty in daily living activities	Control Group		Experimental Group	
	Pre-Intervention	Post-Intervention	Pre-Intervention	Post-Intervention
Minimal difficulty in daily living activities	-	-	-	8 (40%)
Mild difficulty in daily living activities	-	-	-	12 (60%)
Moderate difficulty in daily living activities	3 (15%)	7 (35%)	-	-
Severe difficulty in daily living activities	17 (85%)	13 (65%)	20 (100%)	-

Table No. 3: Comparison of level of difficulty in daily living activities before and after intervention of experimental group and control group nurses (n=40)

Variable	Control Group Median (IQR)	Experimental Group Median (IQR)	p-value
Pre-intervention level of difficulty in daily living activities	61.00(5.75)	62.00(1.00)	0.217
Post-intervention level of difficulty in daily living activities	4.0 (1.00)	2.00(1.00)	0.000

Table No. 4: Comparison of Quality of Life of control group and experimental group patients before and after intervention (n=40)

Level of quality of life	Control Group		Experimental Group	
	Pre-Intervention	Post-Intervention	Pre-Intervention	Post-Intervention
Very Poor Quality of Life	1 (5%)	-	-	-
Poor Quality of Life	18 (90%)	8 (40%)	13 (65%)	-
Moderate Quality of Life	1 (5%)	12 (60%)	7 (35%)	7(35%)
Good Quality of Life	-	-	-	13(65%)

Table No. 5: Comparison of frequency distribution of Quality of Life of control group and experimental group patients before and after intervention (n=40)

Variable	Control Group Median (IQR)	Experimental Group Median (IQR)	p-value
Pre-Intervention Quality of Life	2.00(0.00)	2.00(0.00)	0.152
Post-Intervention Quality of Life	3.0 (1.00)	4.00(1.00)	0.000

Table No. 6: Association between difficulty in daily living activities and quality of life of control group and experimental group patients before and after intervention (n=40)

Variable	Group	Spearman Correlation (ρ)	p-value
Pre-intervention difficulty in daily living activities vs pre-intervention quality of life	Control	-0.289	0.216
	Experimental	-0.306	0.189
Post-intervention difficulty in daily living activities vs post-intervention quality of life	Control	1.000	0.257
	Experimental	-0.385	0.094

DISCUSSION

The present study demonstrated a statistically significant improvement in ADL scores in both control and experimental groups; however, the improvement was substantially greater in the experimental group ($p < 0.001$). The experimental group showed a complete shift from severe dependency to mild or minimal difficulty after intervention. These findings are consistent with the study conducted by Zhang¹², which reported that structured nursing interventions significantly improved functional recovery and independence in post-hip replacement patients. Similarly, Rehman et al⁷ found that rehabilitation-based nursing care enhances mobility and daily functioning after orthopedic surgery. Smith et al¹³ reported significant post-operative improvements in ADL scores among patients undergoing hip replacement following structured nursing and physiotherapy interventions, particularly in mobility and self-care domains. Similarly, Patel and Singh¹⁴ found that targeted rehabilitation programs enhanced not only core physical abilities but also the capacity to perform household and social activities, supporting the notion that comprehensive post-surgical interventions can facilitate holistic recovery.

In contrast, the control group in the present study showed only minimal improvement, which may be attributed to routine care and natural recovery. This finding aligns with Ahmed et al¹⁵, who reported that standard post-operative care alone results in slower functional recovery compared to structured rehabilitation programs.

The study findings revealed a significant improvement in quality of life in both groups; however, the experimental group demonstrated a much higher improvement compared to the control group ($p < 0.001$). The majority of patients in the experimental group achieved good quality of life after intervention, whereas the control group remained mostly in the moderate category. These results are supported by Jones et al⁹, who found that rehabilitation and nursing education significantly improve quality of life in post-arthroplasty patients. Mohammed et al¹⁶ reported significant post-intervention improvements in both physical and psychosocial aspects of QoL among patients undergoing hip replacement, highlighting enhanced mobility, independence, and social participation.

Similarly, Singh et al¹⁷ found that interventions combining physiotherapy, patient education, and functional skill practice resulted in measurable gains in physical functioning and overall well-being, mirroring the present study's results. Taraldsen¹⁸ also emphasized that post-surgical rehabilitation can enhance autonomy and confidence in daily activities, further supporting the current findings.

However, some improvement in the control group was also observed, which is consistent with Mahomed³, who noted that natural recovery and routine physiotherapy can lead to gradual improvements in QoL even without structured interventions. Furthermore, while family support and resource access were consistently high in the present sample, other studies in less resourced settings have highlighted that limited social support can impede QoL improvements, underscoring the influence of contextual factors on recovery outcomes.^{19,20} Overall, the present study confirms that structured intervention is more effective than routine care in improving quality of life.

CONCLUSION

Both groups were similar at baseline, ensuring fair comparison. While the control group showed slight improvement, the experimental group demonstrated significantly greater improvement in activities of daily living and quality of life after the nurse-led intervention. Although both outcomes improved, no significant association was found between them. Overall, the intervention was effective in enhancing patients' functional independence and quality of life.

Author's Contribution:

Concept & Design or acquisition of analysis or interpretation of data:	Kausar Sultana, Muhammad Saifullah
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Conflict of Interest: The study has no conflict of interest to declare by any author.

Source of Funding: None

Ethical Approval: No. UOL/IREB/25/07/0046 Dated 17.03.2025

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