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*Original Research Article*

# A Study To Assess The Quality Of Life In Elderly Patients Who Have Undergone Hemiarthroplasty Of The Hip

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## Abstract

Studies have correlated the results from treating femoral neck fractures with the surgical technique used, the type of prosthesis used or with the radiological outcomes. However, little has been defined about quality of life after hemiarthroplasty in elderly patients.
Purposive sampling method was adopted and Pre-injury and Post-operative Observational analysis was done after hemiarthroplasty in elderly patients in relation to physical, psychological, social relationships and environment domains of quality of life. After Exclusion of neurologically ill and grievous comorbid individuals 100 patients with an average age of 70.8 years who underwent hemiarthroplasty in a tertiary care hospital were studied. Patients with Mini Mental Status Examination score more than 24 inferring good cognitive function were only included. Health related quality of life was rated by the WHOQOL-BREF applied before surgery and 6 months after surgery.
The comparison of pre-injury and post-surgery ambulation showed that 30% of them used a walker for ambulation due to fear of fall. WHO Quality of Life BREF score assessment showed that elderly patients didn't return to their previous pre-surgery quality of life status, where psychological domain being the most affected followed by environmental and social domains. Results showed the need for improvisation of various aspects of post-operative care like designated rehabilitation protocols, fall clinics, psychotherapy, geriatric care for associated comorbidities with implementation of comprehensive speciality care approach apart from good surgical and implant outcome.

**Keywords:** Quality of life, elderly patients, hemiarthroplasty of the hip

## Introduction

Most devastating complication following hip fracture is its associated Mortality. The reported 30-day mortality rate is 9.6% and it increases to approximately 30% in one year after hip

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fractures in elderly. The mortality rates may vary depending on the baseline health and functional status, associated co morbidities, fracture pattern and perioperative complications. Coronary artery disease and other cardiac conditions, pneumonia and deep vein thrombosis being the most important associations with mortality [1, 2].

Hemiarthroplasty involves removal of the femoral head and most of the femoral neck, and replacing it with a metal prosthesis. It is a quick, relatively simple surgical technique and has a lower risk of dislocation related to the larger head size.

Hemiarthroplasty is done with either the posterior approach or the lateral approach. Posterior approach had an advantage of less pain and more patient satisfaction while the lateral approach had a lesser chance of dislocation. But both had no statistically significant difference between any outcome measures like mortality, degree of residual pain and regaining of walking ability and both produced comparable functional outcome [3].

Hemiarthroplasty is accomplished with removal of the head and part of the neck and replacing that with prosthesis. Prosthesis may either be unipolar or bipolar. Bipolar has an advantage of improved range of motion and increased stability. But studies have suggested that in the long run, bipolar prosthesis provides no better functional outcomes than the unipolar design [4].

Prosthesis can be inserted with or without cement. Uncemented implants are faster to perform, cemented ones render better mobility, function and less pain. But the perioperative complications were not different and recent studies involving modern implants show no differences between the two of them.

## Methodology

### Sampling

Purposive sampling method was adopted. Study population includes patients above 60 years with fractured neck of femur who have undergone hemiarthroplasty in the department of Orthopaedics.

### Sample size

100. Total 125 patients had undergone hemiarthroplasty. 21 of them were excluded due to exclusion criteria of grievous and neurological conditions. Remaining 4 were excluded due to a low MMSE score.

### Inclusion criteria

- Cases of fractured neck of femur of age group 60yrs and above operated with hemiarthroplasty
- Patient who give consent to participate.
- Patient of either gender.

### Exclusion criteria

- Neurologically ill patients like head injury, stroke, epilepsy and Parkinsonism.
- Patients having MMSE score less than 24.
- Associated other limb fractures.
- Patients who were unavailable for follow-up.
- Patients with sepsis and other grievous comorbid conditions.

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## Data Analysis

Patient characteristics and outcome measures are reported as means, medians, standard deviations (SDs) and percentages as appropriate. Inferential data will be assessed with statistical tests like chi square test and student t test Wilcoxon rank sum tests, Analysis performed using SPSS software (Statistical Package for social science) and RStudio software.

## WHO Quality of Life –BREF

The patient's quality of life was evaluated by using World Health Organization Quality of life (WHOQOL- BREF) instrument which was developed by WHO in 1996. It contains 26 items, and is the shorter version of the WHOQOL100 and has four domain scores. The main domains assessed by the assessor are physical domain, psychological domain, social relationships domain and environmental domain. There are two other items comprising of individual's overall perception of quality of life and his health which are examined separately.

The domains are scaled in appositive direction (i.e. higher the score denotes higher quality of life). Final scores are calculated from the obtained mean scores. The tool has been simultaneously developed in several countries across the world including India.

WHO –BREF has 26 questions with 4 core domains, they are physical health, psychological, social relationships and environment. Physical Domain includes daily living activities, medicinal substances usage, energy usage and fatigue, mobility, discomfort and pain, rest and capacity to work. Psychological domain includes appearances and body image, feelings of negativity, positivity, self-esteem, belief in spirituality / religion, thinking, learning, memory and concentration. Personal relationships, social support and sexual activity falls in social relationships and environmental domains includes resources for finance, physical safety and security, freedom, health care accessibility and quality of it, environment surrounding home, opportunities for acquiring skills and new information, participation in recreational activities, transport and physical environment (pollution / noise / traffic / climate)".

The obtained mean scores are then multiplied by 4 in order to make domain scores comparable with the scores used in the WHOQOL-100 that ranges from 4 and 20. Responses were collected on a 5-point Likert-scale ranging from very dissatisfied to very satisfied and scored 1 to 5 respectively.

Domain scores produced by the WHOQOL-BREF have been shown to correlate at around 0.9 with the WHO-QOL100 domain scores, and hence provide an excellent alternative to the assessment of domain profile using WHOQOL-100.58. The BREF scale takes only 5-8 minutes for completion.

## Results

**Table 1:** WHOQOL Domain 1 score analysis

| **Comparison between WHO Domain 1 Preop and 1st Week post op** | | | | |
|---|---|---|---|---|
| | **Average** | **Standard Deviation** | **P value** | **Method** |
| WHO D1 PRE- OP | 72.61 | 9.71 | 0 | Wilcoxon rank sum test with continuity correction |
| WHO D1 1 week | 26.08 | 7.08 | | |
| **Comparison between WHO Domain 1 Preop and 3rd Months post op** | | | | |
| | **Average** | **Standard Deviation** | **P value** | **Method** |
| WHO D1 PRE- OP | 72.61 | 9.71 | 0 | Wilcoxon rank sum test |

| | | | | |
|---|---|---|---|---|
| | | | | with continuity correction |
| WHO D1 3 Months | 50.01 | 16.38 | | |
| **Comparison between WHO Domain 1 Preop and 6th Months post op** | | | | |
| | **Average** | **Standard Deviation** | **P value** | **Method** |
| WHO D1 PRE- OP | 72.61 | 9.71 | 0 | Wilcoxon rank sum test with continuity correction |
| WHO D1 6 Months | 58.27 | 20.44 | | |

In a group of 91 patients who underwent hemiarthroplasty, WHOQOL DOMAIN 1 scores were accessed preoperatively and post-operatively at 1st week, 3rd month and 6th month. Using paired t-test data and Wilcoxon rank sum test data were analyzed between Preop scores and post-operative 1st week, 3rd month and 6th month scores individually. P value was found to be < 0.05 and differences were found highly significant between them.
The WHOQOL Domain 1 score analysis which deals with Physical domains of quality of life. It showed 64.32% of reduction in scores at 1st week, 27.48% of reduction at 3rd month, 13.46% reduction at 6th month. In the final follow up at 6th months, patients had a 13.46% reduction from pre-op scores.

**Table 2:** WHOQOL Domain 2 score analysis

| **Comparison between WHOQOL Domain 2 Preop score and 1st week post op** | | | | |
|---|---|---|---|---|
| | **Average** | **Standard Deviation** | **P value** | **Method** |
| WHO D2 PREOP | 66.26 | 9.57 | 0 | Wilcoxon rank sum test with continuity correction |
| WHO D2 1 Week | 24.74 | 6.75 | | |
| **Comparison between WHOQOL Domain 2 Preop score and 3 months post op** | | | | |
| | **Average** | **Standard Deviation** | **P value** | **Method** |
| WHO D2 PREOP | 66.26 | 9.57 | 0 | Wilcoxon rank sum test with continuity correction |
| WHO D2 3 Months | 38.32 | 13.03 | | |
| **Comparison between WHOQOL Domain 2 Preop score and 6 months post op** | | | | |
| | **Average** | **Standard Deviation** | **P value** | **Method** |
| WHO D2 PREOP | 66.26 | 9.57 | 0 | Wilcoxon rank sum test with continuity correction |
| WHO D2 6 Months | 44.09 | 17.59 | | |

In a group of 91 patients who underwent hemiarthroplasty, WHOQOL DOMAIN 2 scores were accessed preoperatively and post-operatively at 1st week, 3rd month and 6th month. Using paired t-test data and Wilcoxon rank sum test data were analyzed between Preop scores and post-operative 1st week, 3rd month and 6th month scores individually. P value was found to be < 0.05 and differences were found highly significant between them.
The WHOQOL Domain 2 score analysis deals with psychological aspects of quality of life. It showed 62.56% of reduction in scores at 1st week, 38.99% of reduction at 3rd month, 28.17% reduction at 6th month. In the final follow up at 6th month, patients had a 28% reduction from pre-op scores.

**Table 3:** WHOQOL Domain 3 score analysis

| **Comparison between WHOQOL Domain 3 Preop score and 1st week post op score** | | | | |
|---|---|---|---|---|
| | **Average** | **Standard Deviation** | **P value** | **Method** |
| WHO D3 PREOP | 45.91 | 6.53 | 0 | Wilcoxon rank sum test with continuity correction |
| WHO D3 1 Week | 21.68 | 8.97 | | |
| **Comparison between WHOQOL Domain 3 Preop score and 3-month post op score** | | | | |
| | **Average** | **Standard Deviation** | **P value** | **Method** |
| WHO D3 PREOP | 45.91 | 6.53 | 0 | Wilcoxon rank sum test with continuity correction |
| WHO D3 3 Months | 27.99 | 9.25 | | |
| **Comparison between WHOQOL Domain 3 Preop score and 6-month post op score** | | | | |
| | **Average** | **Standard Deviation** | **P value** | **Method** |
| WHO D3 PREOP | 45.91 | 6.53 | 0 | Wilcoxon rank sum test with continuity correction |
| WHO D3 6 Months | 33.15 | 12.85 | | |

In a group of 91 patients who underwent hemiarthroplasty, WHOQOL domain 3 scores were accessed preoperatively and post-operatively at 1st week, 3rd month and 6th month. Using paired t-test data and Wilcoxon rank sum test data were analyzed between Preop scores and post-operative 1st week, 3rd month and 6th month scores individually. P value was found to be < 0.05 and differences were found highly significant between them.
The WHOQOL Domain 3 score analysis deals with social aspects of quality of life. It showed 52.63% of reduction in scores at 1st week, 35.51% of reduction at 3rd month, 21.69% reduction at 6th month. In the final follow up at 6th months, patients had a 21% reduction from pre-op scores.

**Table 4:** WHOQOL Domain 4 score analysis

| **Comparison between WHOQOL Domain 4 Preop score and 1st week post op** | | | | |
|---|---|---|---|---|
| | **Average** | **Standard Deviation** | **P value** | **Method** |
| WHO D4 PREOP | 71.41 | 9.26 | 0 | Wilcoxon rank sum test with continuity correction |
| WHO D4 1 Week | 32.94 | 7.38 | | |
| **Comparison between WHOQOL Domain 4 Preop score and 3 months post op** | | | | |
| | **Average** | **Standard Deviation** | **P value** | **Method** |
| WHO D4 PREOP | 71.41 | 9.26 | 0 | Wilcoxon rank sum test with continuity correction |
| WHO D4 3 Months | 48.49 | 14.46 | | |
| **Comparison between WHOQOL Domain 4 Preop score and 6 months post op** | | | | |
| | **Average** | **Standard Deviation** | **P value** | **Method** |
| WHO D4 PREOP | 71.41 | 9.26 | 0 | Wilcoxon rank sum test with continuity correction |
| WHO D4 6 Months | 50.78 | 17.76 | | |

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In a group of 91 patients who underwent hemiarthroplasty, WHOQOL domain 4 scores were accessed preoperatively and post-operatively at 1st week, 3rd month and 6th month. Using paired t-test data and Wilcoxon rank sum test data were analyzed between Preop scores and post-operative 1st week, 3rd month and 6th month scores individually. P value was found to be < 0.05 and differences were found highly significant between them.
The WHOQOL Domain 4 score analysis deals with environmental aspects of quality of life. It showed 53.81% of reduction in scores at 1st week, 28.37% of reduction at 3rd month, 22.79% reduction at 6th month. In the final follow up at 6th months, patients had a 22% reduction from pre-op scores.

**Table 5:** WHOQOL question 1 score analysis

| **Comparison between WHOQOL Question 1 Preop and Post op 6 months** | | | | |
|---|---|---|---|---|
| | **Average** | **Standard Deviation** | **p value** | **Method** |
| WHO Q1 PREOP | 3.62 | 0.78 | 0 | Wilcoxon rank sum test with continuity correction |
| WHO Q1 POST OP | 2.53 | 0.77 | | |

WHO QOL Question 1 which deals about subjective feeling of quality of life of the patients showed that the average pre-op score was 3.62 out of 5 and the average postop scores was 2.53 out of 5. Scores was analysed using Paired T test and Wilcoxan rank sum test and was found to be < 0.05 and differences were found highly significant between them.

**Table 6:** WHOQOL questions 2 score analysis

| **Comparison between WHOQOL Question 2 Preop score and Post op 6 months** | | | | |
|---|---|---|---|---|
| | **Average** | **Standard Deviation** | **P value** | **Method** |
| WHO Q2 PRE-OP | 3.63 | 0.77 | 0 | Wilcoxon rank sum test with continuity correction |
| WHO Q2 POST OP | 2.44 | 0.73 | | |

WHO QOL Question 2 which deals about subjective feeling of satisfaction about health of the patients showed that the average preop score was
3.63 out of 5 and the average postop scores was 2.44 out of 5. Scores were analysed using Paired T test and Wilcoxon rank sum test and was found to be
< 0.05 and differences were found highly significant between them.

## Discussion

WHO Quality of Life BREF score assessment showed that elderly patients didn't return to their previous pre-surgery quality of life status. Physical Domain had about 13% decreases in the scores and the majorly affected things were capacity to work and having enough energy to work.
Psychological Domain was the most affected with the decrease of about 27% which was very significant and included the decreased feeling to enjoy life, not accepting bodily appearance and not satisfied about oneself, being the most common association.
Many of the patients felt the need of support from friends and family which influenced the

Social domain scores which had a decrease of around 21%. There was a decrease of 22% in the scores of the Environmental Domain. Major contributing factors being the problems of living place condition, transportation, health services and affordability.

Cooper *et al.* [5] also reported that QOL in elderly had impairments in both the physical and psychological domains. In another study by Suriyawongpaisal *et al*. [6] which followed up at different points during rehabilitation, there was a decline in HRQOL during the initial phase after a fracture. Between the third and fourth months after the fracture, only partial recovery is observed in the physical and psychosocial factors thereby perpetuating the negative effects. So, there are various studies which postulated impaired mobility and balance along with functional and social independence reflected diminution of QOL and indicates that individuals do not return to their pre-fracture lifestyle.

The study by Peters *et al*. also showed that The Health Status and HRQOL of majority of the patients recovered in the first 6 months after fracture. However, their HS did not return to pre-fracture level. They concluded that optimizing nutrition intake, (home) rehabilitation programmes, and the possibility for psychological counselling in patients with difficulties in the psychosocial dimensions would be recommended after hip fracture surgery [7].

The need for specifically organized units has been emphasized by Prestmo *et al*. They found it less costly and more effective than in orthopaedic units. Patients treated with comprehensive geriatric care during hospitalization had improved physical behaviour and independent living as compared to ones treated in orthopaedic care. [8]

## Conclusion

WHO Quality of Life BREF score assessment showed that elderly patients didn't return to their previous pre-surgery quality of life status, where psychological domain being the most affected followed by environmental and social domains. Results showed the need for improvisation of various aspects of post-operative care like designated rehabilitation protocols, fall clinics, psychotherapy, geriatric care for associated comorbidities with implementation of comprehensive speciality care approach apart from good surgical and implant outcome.

## References

1. Parker M, Johansen A. Hip fracture. BMJ. 2006 Jul 1;333(7557):27-30.
2. Cummings SR, Browner W, Cummings SR, Black DM, Nevitt MC, Browner W, *et al*. Bone density at various sites for prediction of hip fractures. The Lancet. 1993 Jan 9;341(8837):72-5.
3. Kannus P, Sievänen H, Palvanen M, Järvinen T, Parkkari J. Prevention of falls and consequent injuries in elderly people. The Lancet. 2005 Nov;366(9500):1885-93.
4. Dhanwal DK, Dennison EM, Harvey NC, Cooper C. Epidemiology of hip fracture: Worldwide geographic variation. Indian J Orthop. 2011 Mar;45(1):15.
5. Suriyawongpaisal P, Chariyalertsak S, Wanvarie S. Quality of life and functional status of patients with hip fractures in Thailand. Southeast Asian J trop med public health. 2003;34(2):6.
6. Theander E, Jarnlo GB, Ornstein E, Karlsson MK. Activities of daily living decrease similarly in hospital-treated patients with a hip fracture or a vertebral fracture: A one-year prospective study in 151 patients. Scand J Public Health. 2004 Oct;32(5):356-60.
7. Chang WT, Kuo YJ, Huang YY, Tsai MJ, Chen YP. Poor Activities of Daily Living Function Reflect Poor Quality of Life after Hip Fracture Surgery for Geriatric Patients. Soc Health Behav. 2019;2(2):41.

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8. Romeo R, Knapp M, Banerjee S, Morris J, Baldwin R, Tarrier N, *et al*. Treatment and prevention of depression after surgery for hip fracture in older people: Cost-effectiveness analysis. J Affect Disord. 2011 Feb 1;128(3):211-9.