



## Original Article

## Assessment of Self-Care Abilities and Associated Factors among Elderly Patients after Hip Fracture Surgery

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## ABSTRACT

Hip fractures are a significant cause of morbidity and mortality among the elderly population, often requiring surgical intervention to restore mobility and independence. Following hip fracture surgery, the assessment of self-care abilities becomes crucial as it directly impacts the overall recovery of these patients. **Objective:** To assess the self-care abilities and associated factors among elderly patients after hip fracture surgery. **Methods:** A descriptive cross-sectional study was conducted at Mayo Hospital Lahore to assess self-care abilities among elderly patients who had undergone hip fracture surgery. 150 patients were selected using a simple random sampling technique. A self-developed questionnaire with a content validity of 0.88 and reliability of 0.674 was used for data collection. **Results:** Most of the participants were female 53.3%, almost 45.3%, within the age of 61 to 65 years and 38% had received education up to middle school level. Furthermore, 65.3% of the participants were married. In terms of self-care ability, 58.7% of the participants demonstrated a moderately adequate level of self-care. The findings of this study indicate that increasing age, lack of formal education, and being married are factors associated with a decrease in self-care ability, with a significance level of  $p < 0.05$ . **Conclusions:** The findings indicate that the participants have moderate adequacy in terms of their self-care abilities. These results emphasize the significance of addressing self-care needs not only during the surgery period but also in the post-operative phase, particularly when individuals experience self-care deficit.

## INTRODUCTION

Hip fracture is a vulnerable condition that involves fractures occurring in the neck of the femur or between the greater and lesser trochanter. This condition significantly worsens overall health and hampers the self-care abilities of elderly individuals [1]. The primary risk factors for hip fractures include advancing age, osteoarthritis, poor health, muscle weakness, joint pain, visual impairment, and osteoporosis. Among these factors, osteoporosis is the leading contributor and main risk factor for hip fractures [2]. Hip fractures can occur suddenly and unexpectedly, leaving elderly patients vulnerable and susceptible to prolonged periods of physical and emotional distress [3]. Hip fractures significantly disrupt the functional capacity of patients, particularly among individuals aged 60 years or above [4]. Hip fractures can lead to various complications

that pose a threat to the elderly. These complications include a compromised level of independence, limited mobility, physical dysfunction, severe pain, and lethargy [5]. With the increasing elderly population worldwide, the incidence of hip fractures is expected to rise significantly. It is projected that by the year 2025, the number of hip fracture cases will reach approximately 2.6 million, and by 2050, the annual number of cases is estimated to range from 4.50 to 6.25 million [6]. Over the past three decades, the incidence of hip fractures in many Asian countries has doubled or even tripled. As a result, it is anticipated that by 2050, more than 50% of all hip fractures will occur in Asia. Furthermore, patients who have experienced a hip fracture are at a twofold increased relative risk of experiencing a recurrent hip fracture [7]. Annually, Pakistan witnesses

over 30,000 cases of hip fractures among the elderly population. It is projected that this number will progressively rise by 214% by the year 2050 [8]. The mortality rate within the first year following a hip fracture is approximately 9%, while it ranges from 15% to 25% for some cases. It has been observed that about 20% of patients are unable to fully regain their self-care abilities after a hip fracture, and less than 30% of these patients are able to return to their previous level of functionality [9]. A gradual deterioration in cognitive function is an additional factor that reduces functional effectiveness during the recovery process [10]. The direct costs associated with this condition are significant due to the extended hospitalization period and subsequent rehabilitation required [11]. Also, hip fracture is connected by the improvement of extra negative grades such as especially incapacity and sadness [12]. Hip fracture treatment Cost depends on surgery, radiological examinations, laboratory evaluation and length of hospitalization [13]. At long last, fracture of the hip is taken after by a few negative results. Lifelong inability after a hip break extended from 32% to 80% [14]. At long last, there is several negative results of hip fracture such dependency, pain, stiffness and unable to do daily life activity. Moreover, permanent disability ability exists 32%-80% among individual due to hip fracture [7]. Assessing self-care abilities among elderly patients following hip fracture surgery is essential for guiding rehabilitation interventions and optimizing post-operative outcomes. Understanding the associated factors can help healthcare professionals identify individuals at higher risk of functional decline and tailor interventions accordingly. By addressing patient-related factors, optimizing surgical care, and providing adequate social support, healthcare providers can enhance self-care abilities, promote independence, and improve the overall quality of life for elderly patients after hip fracture surgery.

## METHODS

A descriptive cross-sectional study was conducted at the orthopedic outpatient department in Mayo Hospital Lahore to assess self-care abilities among elderly patients who had undergone hip fracture surgery. The study duration was five months, starting after the approval of the synopsis from the Research Ethics Committee (REC) and the Biomedical Ethics Sub-Committee (BASR) from university of Lahore. The sample size consisted of 105 patients, determined using a 5% margin of error and a 95% confidence level with the assistance of open Epi software. The patients were selected using a simple random sampling technique. The inclusion criteria comprised elderly patients (both male and female) between the ages of 60 and 80, who had undergone hip fracture surgery and were discharged from Mayo Hospital Lahore. Patients

diagnosed with depression, dementia, Alzheimer's disease, anxiety, bipolar disorder, or schizophrenia was excluded from the study. A self-developed questionnaire was used, based on a previous study by Jeon and colleagues, with a content validity of 0.88 and reliability of 0.674. The questionnaire employed a scoring system for the total self-care score, with a maximum score of 110 indicating higher levels of self-care abilities [15]. Demographic information are age, gender, marital status, Level of education, living environment, sources, family history of bone disease and co-morbid. This information also required for conditioning factors were collected by asking the patients. Self-care abilities/requisites including, Universal Self-Care Requisites, Developmental self-care requisites and Health deviation self-care requisites were measured by 42 items. Patients will ask or assess and suitable option was marked. Then each item matched with level of adequate to inadequate. In terms of scoring, an adequate score was considered to be less than 11 (10% of the sample), somewhat adequate was defined as a score ranging from 11 to 28 (25% of the sample), moderately adequate fell within the range of 29 to 55 (50% of the sample), very inadequate ranged from 56 to 78 (75% of the sample), and grossly inadequate was indicated by a score greater than 79 (more than 75% of the sample). The data were analyzed using SPSS version-21. Quantitative variables were presented as mean and standard deviation, while categorical variables were presented as frequency and percentages.

## RESULTS

Table 1 provides an overview of the characteristics of the 150 participants in the study. Among them, 58 individuals were aged between 55 and 60, 68 individuals were aged between 61 and 65, 21 individuals were aged between 66 and 70, and 3 individuals were above 70 years old. In terms of gender, 70 participants were male and 80 were female. Based on their educational background, 42 participants were illiterate, 50 had primary education, 57 had a middle school education, and 1 had a degree-level education. Regarding marital status, 98 participants were married, 19 were unmarried, and 33 were divorced. The majority of the study participants, 45.3%, were in the age range of 61 to 65. Females accounted for 53.3% of the participants, and 38% had a middle school education. Additionally, 65.3% of the participants were married, as indicated in Table 1.

**Table 1:** Demographic Characteristic of the Study Participants

Variables	Frequency (%)	
Age	55-60 Years	58(38.7)
	61-65 Years	68(45.3)
	66-70 Years	21(14)
	Above 70 Yeas	3(2)
Gender	Male	70(46.7)

	Female	80(53.3)
Educational Status	Illiterate	42(28)
	Primary	50(33.3)
	Middle	57(38)
	High	1(0.7)
Marital Status	Married	98(65.3)
	Unmarried	19(12.7)
	Divorced/Separation	33(22)

Descriptive Statistical analysis through frequency (n) and percentage (%)

Table 2 primarily presents information about the self-care capabilities of the participants in the study. None of the individuals scored below 10. However, 18% of them obtained scores ranging from 11 to 28, indicating somewhat adequate self-care ability. Additionally, 58.7% scored between 56 and 89, demonstrating a moderately adequate level of self-care. A total of 23.3% scored very inadequately, while no individual scored above 79. Overall, the majority of the study participants fell within the moderately adequate range, scoring between 29 and 55 as shown in the table 2.

**Table 2:** Self-Care Abilities of the Study Participants

Self-care ability Scoring	Frequency (%)	Mean± SD
<10 Adequate score	0(0)	45.29± 12.51
11-28 Somewhat adequate score	27(18)	
29-55 Moderately Adequate score	88(58.7)	
56-78 Very Inadequate score	35(23.3)	
>79 Grossly Inadequate Score	0(0)	

Analyzed by frequency(n)and percentage (%)

Table 3 shows that the analysis that suggests a strong relationship between age and self-care, demonstrating that as age increases, self-care ability decreases significantly (p = 0.05). Similarly, it reveals that individuals who are illiterate have lower self-care abilities compared to educated individuals, with a p-value of 0.02. Furthermore, the analysis highlights that married individuals have lower self-care abilities compared to unmarried and divorced individuals, with a p-value of 0.002.

**Table 3:** Associated Factors among Elderly Patients after Hip

Demographic Factors		Self-Care Abilities			p-value
		11-28 Somewhat Adequate score	29-55 Moderately Adequate score	56-78 Very Inadequate score	
Age of the Participants	55-60 Years	9	38	11	0.05
	61-65 Years	18	34	16	
	66-70 Years	0	13	8	
	>70 Years	0	3	0	
Gender of the Participants	Male	9	46	15	0.198
	Female	18	42	20	
Educational Status of the Participants	Illiterate	12	14	16	0.002
	Primary	9	33	8	
	Middle	6	41	10	
	High	1	0	0	

Marital Status of the Participants	Married	21	47	30	0.002
	Unmarried	0	16	3	
	Divorced	6	25	2	

Analyzed by cross tabulation Pearson Chi-Square with sig <0.05

## DISCUSSION

Hip fractures are the most frequent cause of admission to trauma units in older people. There is broad agreement that surgery is the gold standard for the treatment of hip fractures, with the aim of regaining pre-fracture functional ability to the extent possible. The complexity of the surgical procedure may directly impact the level of functional impairment experienced by the patient. Post-operative complications, such as wound infections or implant failures, can delay the recovery process and hinder the patient's ability to engage in self-care activities effectively. In our study majority of the study participants, 45.3% were in the age range of 61 to 65. Females accounted for 53.3% of the participants, and 38% had a middle school education. Additionally, 65.3% of the participants were married. Similarly, a study conducted in Spain most of the study participants 55% were woman; however, the average age was 50 year [16]. Similarly, the study of Clement and his colleague study stted that the overall prevalence of hip fracture among middle-aged and older Chinese adults were 2.36% with age between 50 and 60 year. The self-care capabilities of the participants in our study were 58.7% scored between 56 and 89, demonstrating a moderately adequate level of self-care. A total of 23.3% scored very inadequately, while no individual scored above 79. Overall, the majority of the study participants fell within the moderately adequate range, scoring between 29 and 55. This result was supported by the study of Study Clement and his colleague of overall incidence of wound infection in our study was 7.58% with hip fracture furthermore the patient have an adequate level of self-care [17]. Similarly, another study by Van Heghe *et al.*, reported the participants had a good level of knowledge and practice, and a moderate level of attitude toward hip fracture in elderly population [14]. This stated that consistent but relatively the self-care of our study was lower than that in other studies which focused on geriatric hip fracture. Our study's findings reveal several factors that are associated with self-care abilities among elderly patients after hip fracture surgery; there were a strong relationship between age and self-care, demonstrating that as the person with old age has a more chances for hip fracture. Similarly, it reveals that individuals who are illiterate have lower self-care abilities compared to educated individuals. Furthermore, the analysis highlights that married individuals have lower self-care abilities compared to unmarried and divorced individuals. This result were supported by the many study such like one of the studies identify a correlation with age

study showed that advanced age is often associated with a decline in physical function and may impact self-care abilities [18]. Another study identify a pre-existing health conditions is one of the factors such as diabetes, cardiovascular disease, and cognitive impairment can affect self-care abilities [19]. Furthermore, some study also show that this factor also effect on the quality of life such like; frailty syndrome, characterized by decreased physiological reserve and functional decline, can impact post-operative self-care abilities and also the specific surgical procedure performed can influence the level of impairment and subsequent self-care abilities. Additionally, the post-operative complications, such as wound infection or implant failure, may delay recovery and impact self-care abilities [20]. Persistent pain following surgery may limit mobility and hinder self-care activities. Depression and anxiety; mental health conditions can affect motivation, engagement in self-care, and overall recovery [21]. The type, duration, and intensity of rehabilitation programs can significantly impact functional recovery and self-care abilities. Adequate social support from family, friends, or caregivers can positively influence self-care abilities and facilitate recovery [22].

## CONCLUSIONS

The findings of this study indicate that the study participants possess moderately adequate self-care abilities. Self-care is crucial for meeting the basic needs of the elderly, not only during the surgery period but also in the post-operative phase; particularly when issues like pain and anxiety persist. Enhancing function, independence, and overall quality of life are essential goals for recovery, and they should be taken into account in rehabilitation strategies for older individuals recovering from hip fractures. However, further research is needed to validate these findings, which should involve control groups, a larger patient cohort, and longer prospective follow-up.

## Authors Contribution

Conceptualization: HS  
 Methodology: MA, ZA  
 Conceptualization: HS  
 Formal Analysis: RJ  
 Methodology: MA, ZA  
 Writing-review and editing: MA, ZA, RJ  
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All authors have read and agreed to the published version of the manuscript.

## Conflicts of Interest

The authors declare no conflict of interest.

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