Relationship between functionality and depression among elderly patients with hip or femoral fractures

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Abstract

Introduction The sudden loss of ability to perform one's role increases an elderly person's awareness of his dependency on others and creates emotional frustration. The study aimed to determine the relationship between functionality and depression among elderly persons with fracture of the hip or femur.

Methods This was a correlational study using the Geriatric Depression Scale and Barthel Index Tool to measure depression and functionality, respectively, among randomly sampled geriatric patients admitted in an orthopedic hospital. Spearman rho was used to determine the relationship between functionality and depression.

Results Majority of the 43 respondents were women and the mean age of the sample was 70 years. The respondents had a low level of functionality with a mean Barthel Index of 8.3. Around 85% had mild or severe depression. The Spearman's rho showed a moderate negative relationship between functionality and depression which was statistically significant ($r = -0.51$, $p < 0.01$).

Conclusion Among geriatric patients with femoral or hip fractures, patients with low functionality tend to be depressed.

Key words: Functionality, depression, fracture

Functionality is the ability of a person to perform his or her regular function based on his/her specific role in the family and in society.[1,2] Functionality diminishes with age and a person tends to become more dependent to others. In 2003, more than one third of the older population aged 65 years and above reported limitations in activities of daily living. Between 2015 to 2050, the World Health Organization projected that the older population 60 years and above would increase from 900 million to 2 billion. On a local standpoint, the elderly population (66 years above) numbered 5.9 million in 2012.[3]

One of the conditions that may limit functionality is a fractured extremity. The incidence of fracture increases with age. An individual above 85 years has a tendency to break a bone four times more than someone between 65 and 75 years old. One third of fracture cases involves hip fractures and mainly occurs in persons above 65 years. This is the

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most common type of fracture in the elderly, with an occurrence of 300,000 cases every year. This condition results diminished physical function leading to dependency to others. This dependency may lead to depression.

Depression is a common mental disorder, characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration. Depression can be long-lasting or recurrent, substantially impairing an individual's ability to function at work or school or cope with daily life.[3] According to the World Health Organization, major depression is a commonly occurring, serious, recurrent disorder linked to diminished role functioning and quality of life, medical morbidity, and mortality.[3] The WHO has ranked depression the fourth leading cause of disability worldwide and projects that by 2020, it will be the second leading cause.[4] A local survey conducted by Perlas in 2014 showed that about 5.3% of respondents were suffering from depression.[5] Another study by Josef in the province of Rizal revealed that depression was present in 6.6% of the sample.[6]

The sudden loss of ability to perform one's role increases an elderly person's awareness of his dependency on others and creates emotional frustration. Thus, the study aimed to determine the relationship between functionality and depression among elderly persons with fracture of the hip or femur.

Methods

This study attempted to determine the relationship between functionality and depression among randomly selected elderly patients confined at the Philippine Orthopedic Center for hip or femoral fracture. The Barthel Index of Activities of Daily Living and Geriatric Depression Scale were used to measure functionality and depression, respectively.[7, 8] Spearman's rho was computed to determine the relationship between the Barthel Index and Geriatric Depression Scale scores. The study was approved by the Ethics Review Committee of the Medical Center.

Male or female patients 65 years or older with any type of hip or femoral fracture were recruited. Those who gave an informed consent were included. Patients who refused to cooperate or had disturbances in consciousness were excluded. The sample size of 43 was computed based on p = 0.5, 95% level of confidence and 15% dropout. They were randomly selected from the eligible patients. Those included were asked to answer Barthel Index of Activities of Daily Living (ADL) and Geriatric Depression Scale (GDS) questionnaires and given 30 to 60 minutes to do so.

The Barthel ADL Index is an ordinal scale used to measure performance in 10 activities of daily living and mobility: presence or absence of fecal incontinence, presence or absence of urinary incontinence, help needed with grooming, help needed with toilet use, help needed with feeding, help needed with transfers (e.g. from chair to bed), help needed with walking, help needed with dressing, help needed with climbing stairs, and help needed with bathing. Each performance item is rated on this scale with a given number of points (0 to 3) with a maximum total score of 20 points. A higher score is associated with a greater likelihood of being able to live at home with a degree of independence following discharge from hospital. The Barthel ADL Index has been shown to have fair to moderate reliability and high internal consistency among different populations.

The Geriatric Depression Scale was developed to determine presence of depression in the elderly aged 6o years old and above and consists of 30 items answerable by yes or no. The total score indicates the status of the respondent: no depression (0 to 9), mild depression (10 to 19), severe depression (20 to 30). The instrument has been shown to have high sensitivity and specificity in differentiating depressed from non-depressed patients.

Mean and proportion were used to describe the demographic profile of the respondents. The relationship between Barthel Index and GDS scores was determined using Spearman's rho.

Results

More than 80% of the respondents were women and one-third were more than 75 years old and another third were 65 to 66 years old, as seen in Table 1. Their mean age was 70 years. The respondents had a low level of functionality with a mean Barthel ADL Index of 8.3. Majority of the respondents had mild depression and almost 10% had severe depression based on the GDS scores (Table 2). Less than 15% had no depression. The Spearman's rho showed a

moderate negative correlation between functionality and depression which was statistically significant ($r = -0.51$, $p < 0.01$).

Table 1. Demographic characteristics of respondents (N = 43)

Characteristic	
Male: female	7: 36
Mean age (yr)	71
Age distribution (yr)	No (%)
65-66	13 (30.2)
67-68	4 (9.3)
69-70	7 (16.3)
71-72	3 (7.0)
73-74	2 (4.7)
≥ 75	14 (32.6)

Table 2. Level of depression of 43 respondents

Level of depression	No (%)
None	6 (14.0)
Mild	33 (76.7)
Severe	4 (9.3)

Discussion

Previous studies reported that the prevalence of depression among women is twice that of men.[9,10] Another study reported that women in the United States are about two-thirds more likely than men to be depressed.[4] In the present study, 80% of respondents were women; this could be an explanation for the high incidence of mild and severe depression (85%). The mean Barthel Index for the group was low at 8.3, indicating significant loss of function and implying a greater dependence on others for activities of daily living.

The results are consistent with literature that supports a significant relationship between functionality and depression. One study says that the immobilization consequent to the management of the fracture results in a change of role performance and functionality, putting the patient at risk to develop depression. This is the result of worrying about his future health, finances and family needs. Because of loss of functionality, the patient has more time to worry about his disability and level of health that increases the onset of his depression.[11] Another study noted that disability greatly diminished quality of life and functioning which resulted in dependency on others, which could be a factor in developing depression.

The investigators conclude that among geriatric patients with femoral or hip fractures, those with low functionality tend to suffer from mild to severe depression.

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