

ASSESSMENT OF POST-FRACTURE KINESIOPHOBIA AND FUNCTIONAL INDEPENDENCE IN GERIATRIC PATIENTS RECOVERING FROM DISTAL RADIUS FRAGILITY FRACTURES

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Abstract

Background

Around fifty-one to seventy-two percent of patients experience long-term pain, which directly leads to disability or causes impairment. In geriatric patients, the most important part in determining an individual's quality of life is to assess functional independence. It focuses on public health issues that directly impact individual quality of life and health services.

Objective

To determine the assessment of post-fracture kinesiophobia and functional independence in geriatric patients recovering from distal radius fragility fractures

Methodology

A cross-sectional study was conducted among the geriatric population from the orthopedic department of tertiary care hospitals in Karachi from February 2026 to August 2026. The sample size of 385 was calculated through Raosoft.com software. In this study, two validated tools were used to assess the level of kinesiophobia through the Tampa Scale 11 (TSK-11) and to measure the functional level of the patients through the Functional Independence Measure scoring criteria. The analysis of data was done through SPSS version 23.0 software.

Result

A total of 385 research participants were included in this study. The

prevalence of kinesiophobia was found to be 287 (74.54%) among the geriatric population. The fear of post-fracture kinesiophobia was found in 202(70.38%) and 85 (29.61%). The participants had a higher level of risk due to past accidents: 116(30.12%). The level of functional independence of these patients was moderate assistance, around 91(23.63%).

Conclusion

Kinesiophobia affects the quality of life of older adults who are recovering from fragility fractures of the radius bone.

INTRODUCTION

Kinesiophobia is a term which is related to movement fear—this fear of movement, which may lead to increased pain intensity and decreased mobility. [1] Around fifty-one to seventy-two percent of patients face long-term pain, which directly leads to disability or causes impairment. [2] In geriatric patients, this component is most evident, as they experience fear of movement during daily activities. On the other hand, people know the level of fear and irritability, and they believe that when they avoid their activities, it gives them adverse reactions and slows down their functional activities. [3] In geriatric patients, the factor of post-fracture kinesiophobia is the major component because geriatric patients already have a fear of performing mobility; they feel tense and irritable for initiation of the activity or exercise. [4] Around 60 percent of geriatric patients can have delayed recovery, participation limitations, and decreased performance, which impacts functional mobility. [5]

The prevalence of activities of daily living functional independence in America, Italy, and Spain among the geriatric population was reported around 10 percent to 21 percent, 10.6 percent, and 34.6 percent, respectively. [6] On the other hand, the prevalence of dependence in instrumental activities of daily living among the geriatric population in Taiwan and Spain was 26.2 percent and 53.5 percent. [7] In geriatric patients, the most important part in determining an individual's quality of life is to assess functional independence. It focuses on public health issues that directly impact individual quality of life and health services. [8] Basically,

functional independence is the capability of an individual to perform their daily activities of

living in a safe manner. Assessing functional independence analyses the activities of daily living and instrumental activities of daily living. [9] The activities of daily living include dressing, bathing, eating, and toileting. On the other hand, instrumental activities of daily living include making food, telephone usage, and washing clothes. [10] If a person cannot perform their daily activities, it indicates impairment in performing functions. The evidence demonstrates that the loss of independence is an important concern to older adults. [11] Incapacitated older adults have a lower quality of life and are more prone to depression and death. The ability to perform daily activities is known to maintain independence and is an effective determinant of success and older adults' health. [12]

The reasons for fractures in the geriatric population include weakening of the bones. Around 15 percent of cases occur in the wrist region, and the causes of the fracture are osteoporosis, sedentary lifestyle, fall on outstretched hand, and balance issues. [13] A distal radius fragility fracture is a wrist break caused by a low-energy fall from standing height in a person with weakened bones. [14] Distal radius fragility fractures account for up to 18% of all fractures in adults over 65 globally. [15] Previous studies from different countries have examined the epidemiology of fractures common among geriatric patients, including hip, proximal humerus, distal radius, ankle, and vertebral fractures. [16] The study aimed to assess post-fracture kinesiophobia and functional

independence in geriatric patients recovering from distal radius fragility fractures.

METHODOLOGY

A cross-sectional survey-based study was conducted among the geriatric population of Karachi from February 2026 to August 2026. The subjects were selected from the orthopedic department of tertiary care hospitals of Karachi. The sampling technique was non-probability convenient. The sample size of 385 was calculated through Raosoft.com software at a confidence level of 95% with a 5% margin of error. Inclusion criteria: both male and female geriatric patients, aged 60 to more than 78 years of age, and who had a history of distal radius fracture. In the exclusion criteria, subjects with rheumatoid arthritis, ankylosing spondylitis, gout, and those who were not willing to participate in the study were excluded. All the patients were previously informed about the protocols of the study, and the written consent form was taken before the collection of data. In this study a there were two validated tools were

used to assess the level of kinesophobia through the Tampa Scale 11 (TSK-11). [17] and to measure the functional level of the patients through the Functional Independence Measure scoring criteria. [18] The analysis of data was done through SPSS version 23.0 software. The frequencies and percentages were calculated, and the P value ≤ 0.05 was considered as the level of significance

RESULT

The total number of research participants, 385, was extracted from the orthopedic departments of different tertiary care hospitals in Karachi. First, we asked the research participants about the details of demographic data in which we categorized the age of the participants ranging from 60 years to more than 78 years old. Most of the participants were aged over 78 (31.16%). Most of the research participants were female, around 242 (62.85%), and the majority of the research participants had comorbidities, about 304 (78.96%), as shown in Table No.1:

Table No.1: Demographic Representation of the Research Participants

S.No.	Variables	Frequency (n)	Percentage (%)
1.	<u>Age</u>		
	60-65	69	17.92
	66-71	113	29.35
	72-77	83	21.55
	>78	120	31.16
2.	<u>Gender</u>		
	Male	143	37.14
	Female	242	62.85
3.	<u>Comorbidities</u>		
	Yes	304	78.96
	No	81	21.03
4.	<u>Joint of fracture in Upper Limb</u>		
	Shoulder	103	26.75
	Elbow	86	22.33
	Wrist	129	33.50
	Hand	67	17.40
5.	<u>Joint of fracture in the lower limb</u>		
	Hip	162	42.07
	Knee	78	20.25

Ankle	96	24.93
Foot	49	12.72

The Total number of post-fracture kinesiophobia patients in geriatric patients 287(74.54%) in which around 202(70.38%) female, and 85(29.61%) male as shown in Figure No.1:

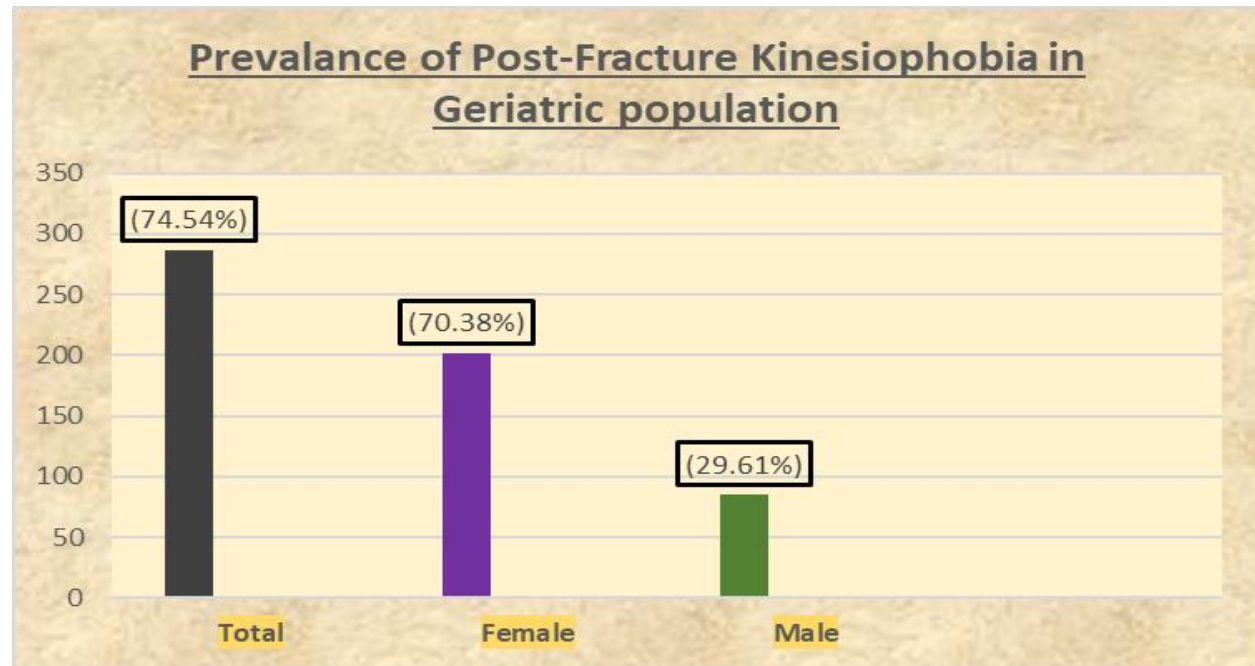


Figure No.1: Prevalence of Post-Fracture Kinesiophobia

We asked the research participants about post-fracture kinesiophobia by asking different questions from a validated questionnaire. When we asked whether, while performing an exercise, they could harm themselves, most of the participants replied agree around 164(42.59%). When we asked the research participants whether the body gives an alarming sign when they are doing something wrong, they agreed around 209(54.28%).

When asked about the chances of increased risk due to past accidents, they replied with strongly agree: around 116(30.12%)

When we asked the research participants regarding the signs of pain indicates them to stop the exercise, they replied in agreement, around 207(53.76%), and a few, around 35(9.0%) were strongly disagreed.

When we asked the participants about when they shouldn't do exercise while suffering from pain, they agreed around 209(54.28%), as shown in Table No.2:

Table No.2: Post-Fracture Kinesiophobia in Geriatric Patients

S.no.	Questions	Strongly Disagree	Disagree	Agree	Strongly Agree
1.	If I do exercise, I can harm myself	91(23.63%)	57(14.80%)	164(42.59%)	73(18.96%)
2.	When I perform the exercise, I feel pain	73(18.96%)	38(9.87%)	87(22.59%)	187(48.57%)
3.	When I am doing something wrong, my body gives me an	36(9.35%)	47(12.20%)	209(54.28%)	93(24.15%)

	alarming sign				
4.	No one takes my health status seriously	125(32.46%)	90(23.37%)	72(18.70%)	98(25.45%)
5.	I am at a higher level of risk due to past accidents	97(25.19%)	63(16.36%)	109(28.31%)	116(30.12%)
6.	Pain in the body shows signs of injury	73(18.96%)	37(9.61%)	98(25.45%)	177(45.97%)
7.	No movement can save me from further injury	117(30.38%)	102(26.49%)	90(23.37%)	76(19.74%)
8.	No harm can enhance my pain until something is done with my body.	94(24.41%)	67(17.40%)	123(31.94%)	101(26.23%)
9.	Signs of pain indicates me to stop the exercise	35(9.0%)	51(13.24%)	207(53.76%)	92(23.89%)
10.	I am more fragile with injuries than normal people.	29(7.53%)	37(9.61%)	221(57.40%)	98(25.45%)
11.	We shouldn't do exercise while suffering from pain.	35(9.09%)	57(14.80%)	209(54.28%)	84(21.81%)

When we asked form the research participants about their functional independence of the post-fracture patients of recovering from distal radius fragility fractures most of the participants said they had the level of assistance is in moderate

around 91(23.63%), the research participants around 74(19.22%) had exist in total assistance level of functional independence, and around 12(3.11%) research participants lie in complete level of independence as shown in Figure No.2:

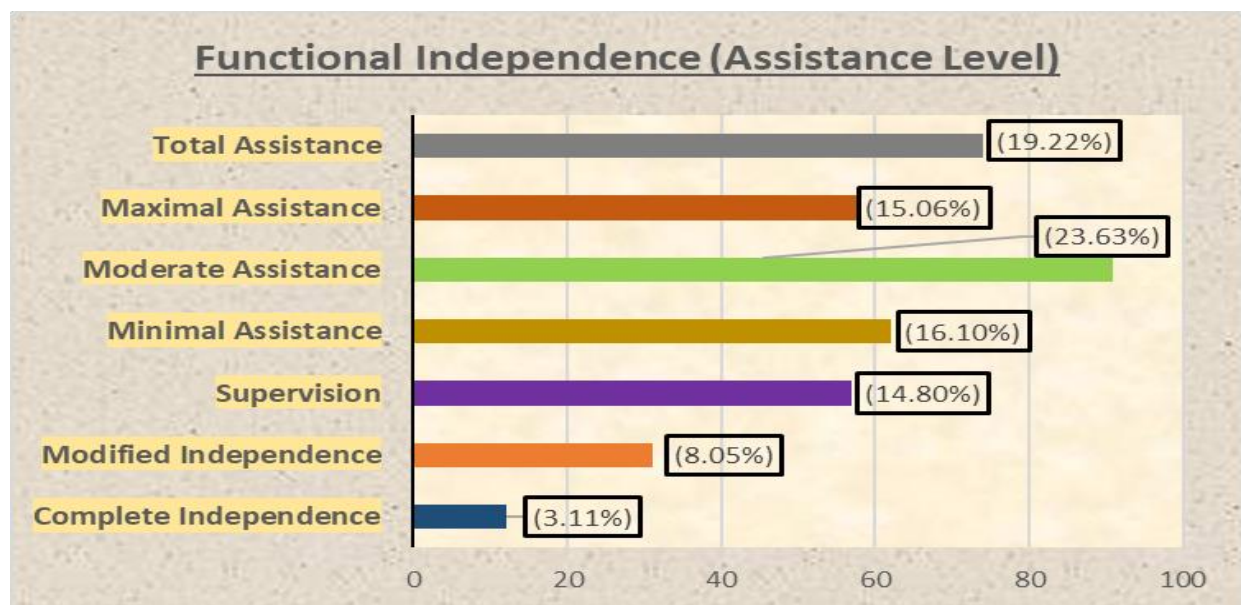


Figure No.2: Functional Independence Level

DISCUSSION

Kinesiophobia and functional independence are associated with each other and provide the detailed health status of older adults who are

undergoing treatment after a certain fracture.[19] Distal fragility fractures can be caused by falling onto an outstretched hand or osteoporosis but can be treated by specialized professionals in clinical practice. [20] There is the presence of psychological factor which can impact the movement of an individual and be a barrier to the rehabilitation intervention.[21] In the current study, findings showed that the prevalence of post-fracture kinesiophobia was high, i.e: 74.54% from which participants of research complain of movement fear which prove that a serious concern among the geriatric population which may influence the quality of life. Some research participants complain of pain due to exercise, which makes it necessary for them to stop exercising. Some of the participants feel fatigue compared to healthy persons.

A study reported that kinesiophobia is presented with pain, fear of movement, reduced activity level, and delay in the recovery process.[22] As compared to this, perceived risk factors of previous accidents were found in 30.12% because past experiences can contribute to the present hindrance in exercise and quality of movement. We observed that the specific limitations in the mobility of individuals. The most common level of movement was performance of ADL's with assistance at a moderate level, i.e., 23.63%, while 19.22% had maximal assistance, and 3.11% had full independence. The findings show the recovery level of fragility fracture of the distal radius in older adults, along with difficulties in performing daily activities. The importance of daily activities among older adults is crucial because it contributes to the quality of life, which directly affects the health status of a patient.[23] The number of participants who need assistance during the performance of daily activities may be due to the combination of pain due to fracture, fear of movement, limitations of movement, age, and presence of comorbidities.[24]

A study stated that the geriatric population may experience this secondary to the psychological impact of injury, which can affect movement during rehabilitation as well as the recovery from treatment. [25] The healing of bone can also be achieved by operative treatment, but the fear of falling behavior can affect the performance of the patient and can cause delays in rehabilitation of the upper limb. [26] In the current study, the participants reported comorbid are 78.96%, which might contribute as a factor in functional limitation and slowness of the recovery process. Therefore, the findings of our study highlight the importance of physical activity and rehabilitation interventions among the geriatric population after fragility fractures. There are available measuring tools, i.e., the Tampa Scale for Kinesiophobia-11 and functional independence, to measure the functional status of patients during treatment.[27] The goal of rehabilitation is to provide the safety of movement, confidence, and promote independence, which can enhance the quality of life of the geriatric population.[28] The present study will help to assist the healthcare professionals to make the strategic rehabilitation plan that can provide better treatment protocols to older patients.

CONCLUSION

The conclusion of our study are there are some common problems after fracture operation, i.e: kinesiophobia, affecting quality of life specially in older adults who were recovering from fragility fractures of the radius bone. The presence of kinesiophobia in older adults in huge amount can reflect psychological constraints, which include fear of movement, fear of falling, and also affect the performance of patients during the rehabilitation treatment.

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