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# RELATIONSHIP BETWEEN FEAR, FALL & BALANCE IN COMMUNITY DWELLING OLDER ADULTS

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## ABSTRACT

**Background:** In older population the risk of fall is always at high risk and there are many contributing factor which increase the prevalence of fall. The impaired balance leads to limited daily activities and confidence level. **Purpose of the study:** The main purpose of this study was to determine the relationship between fall, fear and balance in older population. **Method & methodology:** The descriptive cross sectional study design was used and a sample of 271 older adult were recruited through purpose sampling technique. The detail demographic was noted, history of fall and other related co-morbidities were mention in performa. The standardized test Activity based confidence scale (ABC) and Time up & go (TUG) were used for proper assessment. **Results:** The result shows that 72% sample were composed of females and 28% were male. Majority 71% belong to age bracket 65-74 years and 79% have no history of fall. Only 19% have high level of physical function on confidence scale, 36% and 45 % were in moderate and low level of physical functioning respectively. The ralationship shows that the older adults who have impaire mobility on TUG have 30%<sup>(82)</sup> and 11.43%<sup>(31)</sup> low and moderate level of physical functioning on ABC scale respectively. **Conclusions:** The findings indicate that majority of older adults have no fall history but still most of them have low level of confidence & physical functioning on ABC scale. The confidence balance is associated with the physical functioning in older adults and need to improve the balance training for proper functioning.

**KEY WORDS:** Activity based Balance ABC, Physical functioning, Time up and go test

## INTRODUCTION

Frail, Aged; refers to a person over the age of 65 years experiencing either chronic illness or disability of any form of over 1 year's duration.<sup>[1]</sup> Fall is a common problem in geriatric population. In our community at least 19.3% of older people report history of fall, with a higher incidence among people who have associated co morbidities like stroke, visual impairments, defective foot wear, any type of arthritis & fractures in elderly population The risk of falling and as a result of fall being injured increase with age because of both physiologic and pathologic changes.<sup>[2]</sup> Frequent falls are a general reason for admission of previously independent elderly person to long time care institution elderly people should take rehabilitation classes for balance and appropriate gait to prevent the recurrent falls. This study identified the risk factors associated with fall and relationship of fall with impaired balance. A biological system that enable us to know where our body in the environment and to keep a desired position. <sup>[3]</sup> In multiple reviews the strongest risk factor for falls is Gait and balance disorders. muscle strength and tone,

Body-orienting reflexes, and the step length and height all diminished with age and decrease the ability to avoid a fall after sudden bumped or slip. Though impairment in balance is recognized as a major predictor of falls. <sup>[4]</sup> A large proportion of falls in elderly people occurs during walking on even level pathways. Moreover, older adults are more likely to fall when performing synchronized tasks, such as walking while performing other motor or cognitive tasks. <sup>[5]</sup> Fear of fall is an important psychosomatic barrier that may need to be carried away to improve movement levels in older adults with the help of direct supervision of physical therapist in activities of daily living. <sup>[6]</sup> The Activities-specific Balance Confidence (ABC) scale was developed to statistically calculate the level of confidence in performing different specific activities without losing balance and confidence. <sup>[7]</sup> The ABC Scale consists of 16 different questions, in which 0% (no confidence) to 100% (complete confidence),<sup>[8]</sup> The 'time get up and go' test (TUG) is a easy, simple to evaluate the lower extremity function and mobility and risk fall.<sup>[9]</sup> The test requires a person to stand up from an armchair, walk 3 m <sup>(10 Ft.)</sup>, come back to the chair, and sit down. Time taken to

complete the test is strongly associated to functional mobility. <sup>[10]</sup>

## METHODS & METHODOLOGY

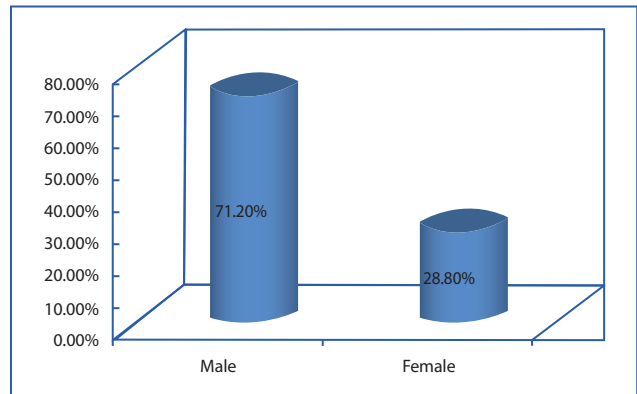
The study design was descriptive cross sectional conducted from February 2014 to June 2014 in twin cities of Rawalpindi and Islamabad. The sample of 271 older adults was collected through non-probability purposive sampling. The inclusion criteria were geriatric population of either gender in community based and people with multiple co morbidities were excluded from study. The informed consent was taken from all participants. The demographic was noted and a self administered questionnaire was designed to collect the data of associated factors regarding the previous history of fall and issues of balance. The standardized test of Activities Based Confidence scale (ABC) was used to evaluate the level of confidence during performing physical function in daily activities among older adults. This is self reported scale and participant reported the percentage of confidence in performing physical function. The interpretation states that 80%, 50-79% and less than 50% score means high, moderate and low level of physical functioning respectively. <sup>[7]</sup> Another test Time Up and Go (TUG) was used to measure the independence in activities and balance. The score reports that the time for TUG <10, <20 and >20 means freely mobile, mostly independent and impaired mobility respectively. <sup>[10]</sup> The data was analyzed through SPSS 21 version and frequency tables and cross tabulation for relationship was drawn for results.

## RESULTS

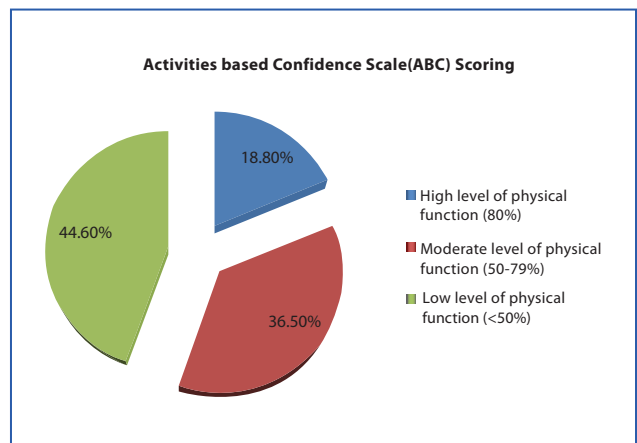
The statistical description of this study suggest that out of 271 geriatric population from Rawalpindi & Islamabad, out of 271 geriatric population 78 (28.80%) were females & 193 (71.20%) were males. (74.2%) people lie in age group of 65-74, (18.5%) people lie in age group of 75-84, (5.9%) lie in age group of 85-94, (1.5%) lie in age group of 95&above. Out of 100%(271), 79.7% history of no fall, (14.4%) reported one fall, (5.2%) twice fall, (3.7%) three or more times fall, in last 3 months. During time get up and go test, (0.7%) were freely mobile, (56.8%) were mostly independent, (42.4%) with impaired mobility. with high level of physical functioning only 1 was freely mobile, 48 were mostly independent and only two had impaired mobility. With moderate level of physical functioning only 1 was freely mobile, 67 were mostly independent and 31 with impaired mobility. With low level of physical functioning, no one was freely mobile, 39 were mostly independent and 82 with impaired mobility. The relationship shows that the older adults

who have impaired mobility on TUG have 30% (82) and 11.43% (31) low and moderate level of physical functioning on ABC scale respectively. The relationship reported that the older adult who were independent on TUG have 24.7% (67), 14.39% (39) and 17.7% (48) low, moderate and high level of physical functioning on ABC scale respectively.

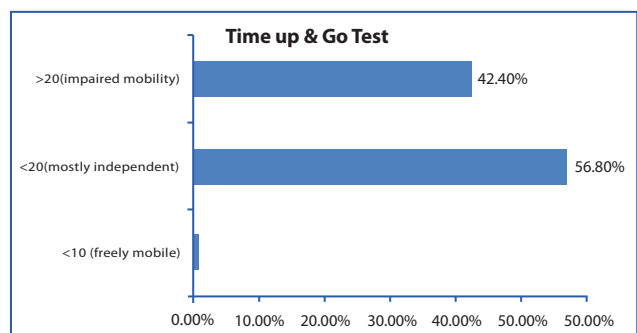
**Graph 1:** Gender Distribution in sample



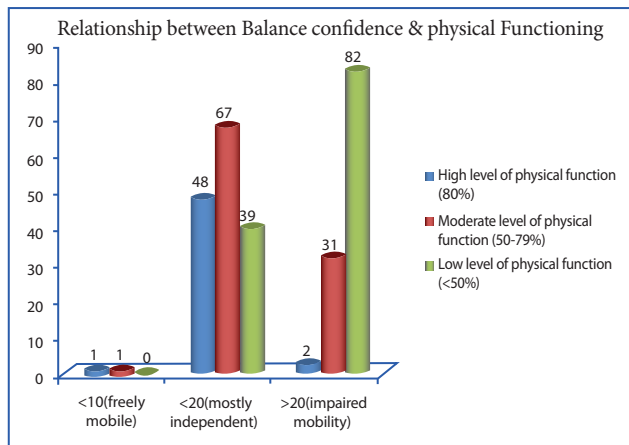
**Graph 2:** Percentage of The Activity-specific balance confidence (ABC) scale



**Graph 3:** Score of timed get up & go test (TUG)



**Graph 4:** Shows the Relationship between Balance confidence and physical functioning



## DISCUSSION

Falls in older adults and fall risk is reliant on a combination of factors (peripheral/central, neurological, musculoskeletal, cardio respiratory), which can fluctuate significantly from person to person. [11] The most important findings of this study revealed that majority of older adults have no fall history but still most of them have low level of confidence & physical functioning on ABC scale. The age group 65-74 showed high score in ABC scale with high level of physical functioning. The reason may include the majority of age group 65-74. The similar research was done by Klima et al. [12] Another finding of this study include that male older adults have high score in ABC scale while women older adults have lower it may be the reason of majority but it also depends upon the lower physical activity of women in older age in Pakistani society. According to Petra Pohl et al in their research at baseline 55% women (n = 92) and 22% men (n = 14) reported FOF. During the follow-up 21% women (n = 35) and 30% men (n = 19) experienced recurrent falls.[13]. So this research is in the favor of this study which clearly defines that the confidence level of older female population is lower than males. In this study majority of the moderate level of physical functioning have no history of fall which eliminate the risk factor of previous fall from the list. Majority of the elderly people with impaired mobility (TUG >20) have low score & level of physical functioning on ABC scale. In this study out of 271 only two older adult males have freely mobile (<10sec) category of TUG and not a single old female is freely mobile in this study. Majority of the female older adults lie in the category of impaired mobility (>20sec), and majority of the male older adults lie in the category of mostly independent (<20sec). According to Daniel

Schoene MSc et al Their findings suggest that the TUG is not important for selective fallers from non-fallers in healthy, high-performance older adults but is of more value in less-healthy, lower-performance older people. Overall, the analytical ability and analytic accuracy of the TUG are at best moderate<sup>[14]</sup>

## CONCLUSION AND RECOMMENDATIONS

The study finally concludes that there is relationship between balance confidence and physical functioning. The level of confidence directly linked with the independent performing of physical functioning. There is need to create awareness about balance training to prevent from injuries. More research must be conducted to explore the others contributing factors.

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**Author's contribution:**

**Dr. Ayesha Afridi:** Study concept and design, protocol writing, data collection, data analysis, manuscript writing, manuscript review

**Dr. Sadia Maqbool:** Data collection, data analysis, manuscript writing, manuscript review

**Dr. Arshad Nawaz Malik:** Data analysis, manuscript writing, manuscript review