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## RESEARCH ARTICLE

### RISK OF FALL IN COMMUNITY DWELLING ELDERLY INDIVIDUALS- A CROSS-SECTIONAL STUDY

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#### ABSTRACT

**Background:** Falls are very common in elderly population. Falls are a main cause of morbidity and disability in the elderly. More than one-third of persons 65 years of age or older fall each other, and in half of such cases the falls are recurrent. The risk doubles or triples in the presence of cognitive impairment or history of previous falls. Many view falls as merely a risk factor for fractures, disregarding the fact that falls can lead to affect quality of life and social and psychological consequences, with profound economic effects. This study is design to make aware about risk of fall among the elderly individuals. Research question is does risk of fall affect the community dwelling elderly individuals? and Aim of the study is to find out the risk of falls in community dwelling elderly fallers and non fallers individuals. Clinically this study will help to avoid the injuries which will occur because of fall. **Methods:** Total 30 participants were studied. History of falls in past 1 year was studied using falls questionnaire. Elderly individuals divided into two groups fallers and non-fallers. TUG test was performed on community dwelling elderly individuals. **Result:** Graph Pad 8 software is used for analysis. The participants who had a history of falls also has risk of falls according to their age group. Data is compared with inter groups fallers and non-fallers elderly community dwelling elderly individuals. Two-tailed P value equals 0.0205, 95% confidence interval of this difference (range 0.25-2.81) standard error of difference= 0.624. Unpaired t test is used for the analysis. **Conclusion:** Study concluded that the community dwelling elderly individuals who had not history of fall showing the risk of fall.

## INTRODUCTION

Most developed world countries have accepted the chronological age of 65 years as a definition of elderly or older person (Orimo, 2006). Elderly is defined as being 65 years of age or older, However, the onset of health problems of elderly may occur in early 50s or may be only in 40s. On the other hand, many times we come across the people who are healthy and active; even at the age of 70 years. There are three groups are identified in elderly i.e. young-old, middle-old, old-old. Young old group consists of the population between 65 and 75 years Fall represent most common mechanism of injury and the leading cause of death from injury in people older than 65 years of age (Guccione, 2011). Falls are major cause of disability and preventable and a preventable cause of death in older people. About 30% of people over 65 years of age fall each year; the incidence of falls over in those over 75% years of age is 32%-42% (Tilling, 2006). In India geriatric population is expected to increase from 76.6 million in 2006 to 173.1 in 2026. This segment of the population faces multiple problems in India. A fall is defined as 'inadvertently coming to rest on the ground, floor or other lower level, excluding

intentional change to the rest in furniture, wall or other objects (Dhargave, 2016). There are some risk factors associated with the occurrence of falls in elderly i. e. intrinsic and extrinsic factors. Intrinsic factors are poor balance, weakness, foot problems. Extrinsic factors are poor lighting, slippery surface, obstacles (Multani, 2008). Globally falls are a major public health concern for older adults, and with the growing numbers of older people in populations in all parts of the world, research is urgently needed in order to establish effective policies to reduce risk. Every year one-third of community-dwelling older adults fall (Williams, 2015). In older people, falls often occur during routine activities, such as walking, descending or climbing steps; transferring on or off chairs, bed toilets, or in or out of bathtubs and reaching up or bending down (Bonder, 2017). Falls are very common in elderly population. Falls are a main cause of morbidity and disability in the elderly. More than one-third of persons 65 years of age or older fall each other, and in half of such cases the falls are recurrent. The risk doubles or triples in the presence of cognitive impairment or history of previous falls. Therefore, this study is to design to aware the elderly individuals about risk of fall with and without history of fall.

Aim of the study is to find out the risk of fall in with and without the history of fall in elderly individuals.

**MATERIALS AND METHODS**

In this study the 30 sample size were participated and all males and females who had a history of fall and without history of fall were included in the study. The study setting was physiotherapy OPD. Convenient sampling method was used. It is cross-sectional study. Inclusion Criteria were all males and females above 65-year older age and elderly individuals with and without history of fall (History of fall past 1 year) were included. Exclusion criteria were elderly individuals with lower limb neuropathy. Ethical approval was obtained from the institutional ethical committee.

**Procedure:** Written informed consent form was taken from the participants for screening regarding participation in the study. Falls questionnaire were administered on the participated that includes 10 questions which were based on fall on that basis participants were divided into two groups were fallers and non-fallers. After that Time up & go test was performed on the participants to checked the risk of fall in elderly individuals. For this test equipment used was arm chair, measuring tape, stopwatch. The test began with the participant sited correctly (hip all of the way back to the seat) in a chair with arm rest. The chair should be stable and positioned such that it will not move when the subjects move from the sit to stand. The participants are allowed to use the arm rests during the sit-stand and stand-sit movements. Place a piece of tape or other marker on the floor 3 meters away from the chair so that it is easily seen by the participants. Instruction given to the participants “On the word Go” you will stand up, walk to the line on the floor, turn around and walk back to the chair and sit down and asked participants to walk at your own space. Start timing on the word “Go” and stop timing when the participant is seated again correctly in the chair with their back resting on the back of the chair. The participants wear their regular footwear, there is no time limit they may stop and rest if they need to. Normal healthy elderly usually completes the task in ten seconds or less. Very frail or weak elderly with poor mobility may take 2 minutes or more.

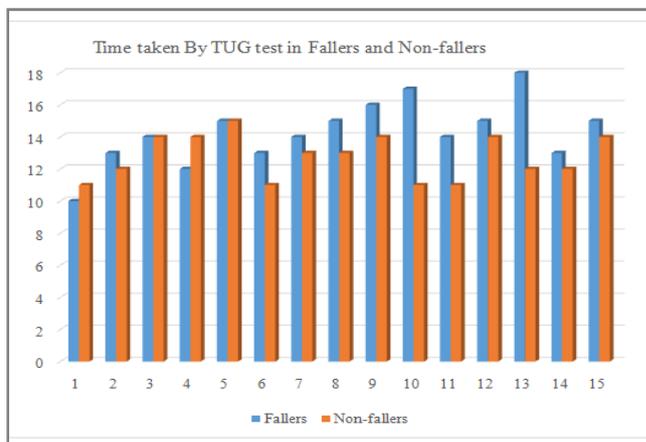
**RESULTS**

In this study thirty participants were assessed, with 15 of them having history of fall and 15 of them without history of fall. The mean age was 67.6 for the fallers group, and mean age for the non-fallers group was 68.13. Demographic data of the participants are depicted in table 1. Demographic data of the study participants (n=30). The fall questionnaire was used to divide the faller and non faller group. The groups were divided on the basis of fall questionnaire that includes 10 questions. In that history of fall from past one year was taken, the participants who had history of fall in past one year are included in fallers group and the participants who had not history of fall in past 1 year are include in non-fallers group. The TUG test was used to assessed the risk of fall in elderly individuals with and without history of fall. In TUG test fallers group has worse performance but non-fallers group also has worse performance (p<0.05). The mean test time was 14.26 seconds in fallers group, and 12.73 seconds for the non-fallers group (p<0.02), as demonstrated in graph 1.

**Table 1.**

Demographic Data	Fallers (n-15)	Non-fallers (n-15)
Gender		
Males	(7)	(8)
Females	(8)	(7)
BMI (kg/m2)	29.4	27.0
eight (kg)	79.6	71.7
Height (m)	1.6	1.6

The values are expressed as mean



**Graph 1.**

**DISCUSSION**

The present study found a risk of fall in elderly individuals without history of fall and with history of fall in past one year means in fallers and non-fallers group and it is statistically significant. This study shows the elderly individuals without history of fall also shows the risk of fall in community dwelling elderly individuals. Tiago S. at al assessed 60 community dwelling elderly individuals. In this study the structured questionnaire was administered to registered the socioeconomic data, and also Basic activity of daily living (ADL) and instrumental activities of daily living (IDL) evaluated. TUG test was administered on community dwelling elderly individuals and follow up was taken for the period of one year. They divided individuals for the in two groups fallers and non-fallers. Result suggested that the predictive value of TUG test 12.47 seconds and the positive predictive value shown the proportion of individuals with 12.47 seconds or more on TUG test who actually fell during the period of follow up and the negative predictive value shown the proportion of individuals with less than 12.47 seconds on the TUG test who didn't fall during the follow up period. But the differences in the performance on the TUG test were statistically significant in both groups <0.001(fallers and non-fallers) Concluded that the TUG test can be used in basic health care and screening of risk of fall in community dwelling elderly individuals. Means the result of this study shown statistically significant difference in both the groups that shows the non fallers shows the risk of fall.

**Conclusion**

It is already proved that the elderly individuals who has history of fall has the risk of fall. But this examined the non-fallers means the elderly individuals who has not the history of fall and concluded the elderly individuals who has not the history of fall showing the risk of fall.

### Clinical Significance

This study gives the information about chances of risk of fall in community dwelling elderly individuals, therefore to avoid the further injuries because of fall, it can be preventing by planning the falls prevention strategies.

### Future Scope

For preventing the risk factors strengthening of antigravity muscles exercises can be given to the elderly individuals earlier and also prevent the risk of fall in community dwelling elderly individuals.

### Key Points

- Falls among elderly individuals are common and result in morbidity, loss of independence, and higher healthcare costs
- Preventive strategies to reduce falls require identification of high risk patients

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