

Fall Risk among Elderly: A Cross Sectional Study

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Abstract

In India, the number of old persons is expected to more than double from 84 million people in 2013 to more than 2 million in 2050. There is an abundance of research into falls in the elderly population. The estimated 1% of fallers who sustain a hip fracture have a 20% to 30% mortality within 1 year of the fracture. The propensity for fall related injury in elderly persons is due to a high prevalence of clinical diseases (eg. Osteoporosis) and age related physiologic changes (eg. Slowed protective reflexes) that make even a mild fall particularly dangerous. A cross sectional research was conducted in an old age home on Puducherry among 100 elders. The fall risk was assessed by TINETTI questionnaire. The study concludes that the risk of fall is higher in the age of 71 – 80 years with 43% who lacks balance and gait, the age group between 60 – 70 years moderate with 37% as they are able to maintain their balance and gait, the risk of fall is low in the age of 81-90 years with 20% whom mobility level is very decreased. The present study recommended various preventive strategies could be followed to minimize the accidents.

Keywords: Fall risk; Elderly.

INTRODUCTION

Older people make up a large and increasing percentage of population worldwide. The age distribution of the world's population changing with advances on medicine and prolonged life

expectancy, the proportion of older people will continue to rise worldwide. The world's population is expected to increase to 9.4 billion by 2050 from the current 7.3 billion. The elderly population is expected to increase from 10.4 % to 21.7%. In India, the number of old persons is expected to more than double from 84 million people in 2013 to more than 2 million in 2050. Falls are one of the major problems in the elderly and are considered as one of the "Geriatric Giants" (Krishnasamy and Usha, 2006)

There is an abundance of research into falls in the elderly population. Evans & Hodgkinson (2002), state that falls are a leading cause of death from injury in people over the age of 75 years, and that people over the age of 65 years suffer from atleast one fall a year. Falls are the leading cause of injury deaths and hospitals admissions for persons 65

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years and older 87% of all fractures are due to falls 50-66% of falls occur in or around the home. 1 in 3 seniors falls each year. Serious injury occurs in 10% of falls. The National Center for Injury Prevention and Control estimate that 30-40% of falls can be prevented. Those who have fallen live with the "fear of falling", which can negatively impart their activities, quality of life and levels of independence. Approximately 25% of community dwelling people 75 or over unnecessarily restrict their activities because of fear of falling.

The major area of concern is the health of the elderly with the multiple medical and psychological problems. The research into the contribution factors associated with falls all have a common theme, which identifies the factors as being either intrinsic or extrinsic or both, and enables those charges with develop a list of the most common causes and factors, and provide prevention and management programs, specific to the needs of the individuals person. All older adults should be evaluated for falls risks. Falls generally results from interaction of multiple and diverse risk factors and situations, many of which can be corrected. These risk factors can be classified into intrinsic, extrinsic and environmental risk factors. This interaction is modified by age, disease and the presence of hazards in the environment.

Falls related mortality increases dramatically with advancing age, especially in populations older than age 70 years. The estimated 1% of fallers who sustain a hip fracture have a 20% to 30% mortality within 1 year of the fracture. The propensity for fall related injury in elderly persons is due to a high prevalence of clinical diseases (eg. Osteoporosis) and age-related physiologic changes (eg. Slowed protective reflexes) that make even a mild fall particularly dangerous.

METHODOLOGY

This cross sectional research was conducted in an old age home on Puducherry. Totally 100 elders were selected as sample by random sampling technique with inclusion and exclusion criteria. The data was collected by using interview technique. The data collection instrument consist of two section; first section contains questions regarding demographic profile of the sample and second section was to assess the level of fall risk among samples. To assess the fall risk TINETTI questionnaire was used. After formal permission from the authority, written consent was obtained from the samples and data were collected. The researchers assisted each

sample to assess the gait and balance. Safety and accountability were ensured.

RESULTS AND DISCUSSION

The demographic profile of the sample results shows that, Among the study population of 100 elderly people, the majority of the samples 43% were in the age group of 71-80 years, 76% were female, 52% were Christian, 69% were literate, 48% were unemployed, 70% were non-earning persons, 65% belongs to the life partner not alive, 50% belongs to the death of life partner, 77% belongs to the duration of stay in years, 93% were feeling secured persons, 53% had history of two time falls and 69% were pension getting persons.

TINETTI score reveals that, majority 60 % of the sample at high risk, 26% of them were at moderate risk and remaining 14 % of them were at low fall risk. It supports the results of a community-based, cross-sectional study conducted in Rural Health Training Centre (RHTC), Devarayanasamudra, Department of Community Medicine, among the elderly persons aged ≥ 60 years. The total sample size was 511, calculated using a previous study using OpenEpi software. The data were collected using a pretested semi-structured questionnaire. The period prevalence of falls was assessed by asking for history of falls in the past 12 months. The majority of the study subjects were illiterates (77.3%), and most of them were married (77.2%). The prevalence of falls in elderly persons was 46.8%. The elderly aged ≥ 70 years, females, chronic diseases, and use of walking aid were observed to have a statistically significant association with falls ($p < 0.005$) (Bhoomika, V., Chandrappa, M., & Reddy, M. M. 2022).

Another cross sectional study was conducted by Srivastava, S., & Muhammad, T. (2022), to identify the prevalence of self-reported fall-related injury and to describe risk factors associated with fall-related injury among older adults in India. The study found that 3.6% of older adults had a fall-related injury. Older adults with walk difficulty had a significantly higher likelihood of reporting fall-related injuries in comparison to their counterparts. Older adults who consumed alcohol had significantly higher odds of reporting fall-related injuries than those who did not consume alcohol. Poor self-rated health was another risk factor for fall-related injury. Further, older adults with dementia were 2.15 times significantly more likely to report fall-related injuries than older adults with no dementia. Also, older women compared to

men were 98% significantly more likely to report fall-related injury. The odds of reporting fall-related injury was significantly higher among those who had a secondary level education compared to those with no education.

Association of fall risk with socio demographic variable was calculated. These results enumerate that, among 100 subjects 71 to 80 years old age people are at high fall risk. Likewise female (46.36%), Hindus (26.84%), Illiterate (42.09%), nonearning (42.7%) and elder doesn't have life partner alive also (39.65%) have high risk to fall. Interactively the elders who feels safe (56.73%) has higher risk to fall. These results have acceptable as well as not acceptable also. The increased age has higher risk of fall and gender has higher influence on risk. The results of this study shows that religion, educational status and income status has influence to higher risk of fall. These results because of majority of samples lays under the respective variable. So, we unable to conclude the religion, educational status and income status has influence over the risk status.

A cross-sectional study, conducted by Sharif, S et al., (2018) using an anonymous, 20 items questionnaire which was developed in English and Arabic to be delivered as a semi-structured interview. The pre-piloted questionnaire was distributed to 510 families with at least one elderly person. Participants were Arabs (368; 99.5%), living with family (339; 91.6%), females (256; 69.2%), married (240; 64.9%), holders of a university Bachelor's degree (110; 29.7%), and unemployed (154; 41.6%). Almost half of the participants (188; 50.8%) had a fall in the past two years, and three quarters (141; 75%) of those claimed that their illness was the reason for their fall. The results indicate that female and 70 years and above old participants are more likely to experience falls than males and younger counterparts respectively. A larger proportion of elderly participants not taking medications did not experience falls, while those on 1-4 medications fallers were less than non-fallers. However as the number of medications increased to 5-8 and more than 8 the number of those experiencing falls was significantly higher than non-fallers.

Prevention of fall among elderly

- Make exercise part of daily routine.
- Stay mentally active staying mentally active, and participating in mind body exercises such as tai chi, yoga, or dance, have been shown to be particularly effective fall prevention strategies for older adults.

- Review medications. Find out the side effects of medicines that makes dizzy.
- Check vision and hearing regularly.
- Conduct an annual home inventory Reorganizing the bedroom, kitchen, living room, and other common areas according to needs is also important to reduce falls and/or prevent them from recurring over time. For example, keep medicines, clothing, food, dishes, and other necessities for day-to-day living within easy reach. Avoid scatter rugs and remove low-rise furniture, such as coffee tables and bookcases, that may clutter direct access to doors, hallways, and windows. Light the way day and night with lamps by the bed and nightlights in each room, and install light switches by all doors. Handrails on both sides of the stairs and grab bars for the shower and toilet are essential.
- Maintain a healthy diet.
- Stand up slowly after been lying down or sitting to prevent posture related dizziness.
- Use non-slip mats in wet zones, such as the shower and bathroom. For larger rooms, consider a non-slip flooring material in the whole area.
- Install hand rails or a seat in the shower or bath. Place non-skid tape on the edges of steps and stairs to make them easier to see.
- Remove moss, slime or fallen leaves from outdoor paths.
- Wear well-fitting shoes.
- vitamin D supplementation with or without calcium.
- Get enough sleep.
- Avoid or limit alcohol. Too much alcohol can lead to balance problems and falls.
- Use an assistive device for walk.

CONCLUSION

Fall is proven that increase among the elder age group people. The assessment of fall risk is importance along with the physical assessment prior to treatment. The actions to prevent fall is necessary in the geriatric care unit, as well as community. The construction engineers must consider the elderly people before planning any community buildings. Like wise every department design their plan for

elderly. By this way, the incidence of fall news can be reduced successfully.

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