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### Assessment of balance and gait among the older adults

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#### Abstract

Balance is the ability to sit, stand, or walk safely without postural deviation, falling, or reaching for an external items without support. Gait or walking is a coordinated action of the neuromuscular and musculoskeletal systems. This study was aim to assess the Balance and Gait problems among older adults. The research approach selected for this study is quantitative approach. Descriptive design was used. Tinnetti scale was used to assess the Balance and Gait problems among older adults. Among 31 older adults, 22.6% older adults belong to High risk of falls, 58.1% older adults belong to Greater chance of falls, 19.3% older adults belongs to stable condition. There was a significant association between Balance and Gait problems with their demographic variables of education and occupation.

Gait with advancing age is characterized by shorter steps with less lifting of the feet as proprioception declines. Shuffling may occur as speed, Balance and Gait decreases with age. This study was useful to identify older adults at risk of falls and find difficulty in performing daily activities. Consequently it is useful to monitor changes overtime.

**Keywords:** Balance and gait, older adults, outpatient departments, maneuver of balance and gait

#### Introduction

“To resist the Frigidity of old age, one must combine the Body, Mind and the Heart”

-Charles victor de bonsetten. (2000)

The number of elderly people in India was nearly 104 million. Out of this population, 53 million are females and 51 million are males. The number of elderly will continue to grow, and there will be increased number of older adults as compared to the number who are alive today. India is today a home to 100 million older adults. The pity is that today's rapid urbanization has overtaken the traditional value-system of our people and shifted their socio economic priorities. This will pose challenges for a variety of systems, especially the health care system.

India's older population is projected to quadruple by midcentury, while that of the world is expected to triple, the US Census Bureau has said. In the latest report the world's 65 and older population is projected to increase from 516 million in 2009 to 1.53 billion in 2050. The older population of US is projected to double by that time. “Although China and India are the world's most populous countries, their older population don't represent large percentages of their total population”

-Census Bureau report (2009)

Average and maximum life expectancy are now higher than ever in most of the developed world and still rising. However, it is not ageing itself, but the sharply increasing

age related prevalence of frailty and multi morbidity, that is the major challenge of health care.

The reduction in fertility level, reinforced by steady increase in the life expectancy has produced fundamental changes in the age structure of the population which in turn leads to the ageing population. The analysis of historical patterns of mortality and fertility decline in India indicates that the process of population ageing intensify only in the 1990s. The older population of India, which was 56.7 million in 1991, is 72 million in 2001 and is expected to grow to 137million by 2021. Today India is home to one out of every ten citizens of the world. Both the absolute and relative size of the population of the elderly will gain in strength in future. Among the total elderly population, those who live in rural areas constitute 78 percent.

Old age adults are dependent on others. Here the right to Freedom was denied from them.

They are economically, physically, and also psychologically dependent to others.

There are so many stigmas regarding older adults in the world like, ageing is the biggest disgrace of mankind, old age is usually disabled people (unable to do self-activity), older adults tend to be stereotyped as ugly. To reduce the risk for late recognition and delayed intervention, you may need adopt more directed questions on health screening tools, as well as consult with family members and caregivers.

Life expectancy is rising at rates which call for the preparation of nurses to take good care of the rapidly

increasing number of the aged. It is important to distinguish changes involved with normal ageing attributable to pathophysiology. Alterations in the structure and function of multiple body system may affect an older adult appearance, mobility and ability to fight off infections.

The focus are providing essential medical and social care for frail older adults often leaves them feeling unable to contribute. But building in reciprocity could help preserve social inclusion and foster autonomy, dignity and quality of life.

-Myrra Veronj (1998)

### Need for study

Globally, 984 million older adults in 2017 from World population prospects.

In India, the older adults are of nearly 104 million. In that there are about 53 million of females and 51 million of males according to 2011 census.

Globally, there was about 646,000 individuals die from falls each year. 37.3 million Falls in severe injury.

In western countries, there are about 30% of older adults injured by falls every one year. In 2017, 29.7% in United States reported as 30 million falls in the preceding 12 months

- WHO

In India totally 19,440 people are severely injured from falls according to NCOA (National Council Of Ageing), 2015.

In Tamil Nadu, there are about 20-30% falls happens according to WHO (2015)

In Kerala, there are about 11% falls according to WHO (2015)

WHO is observing international elderly people care day on 1<sup>st</sup> October. Theme of 2017- "Stepping into the future: Tapping the talents, contributions, and population of older adults in the society". So the government launched many programs to provide care for the older adults.

**"National family caregiver support program"**- It uses grants given to states to provide information to people caring for individual aged above 60 years or older. WHO conducted a global consultation on integrated care for older adults in Germany on 23-25 October 2017? It provides an opportunity for discussion about health and social care systems can better align to the needs of older adults. There are many nongovernmental agencies for older adults in India. Elder's foundation is a registered apex body of the federations of elder's self-help groups with a vision of productive and healthy ageing at national level. Presently, this foundation has its roots at 52 villages of Tamil Nadu. There are 409 older self-help groups with 5895 members operating 3 crore rupees. It is based on elder care system.

There are also physical deterioration that are faced by the older adults. Older adults are generally perceived as sickly weak or ill with health status. Their joints are less tensile and they have the difficulty in arising from sitting in floor.

The mental decline that are faced by the older adults are, Age reduces competence, ability and it results in memory loss. Older adults tend to have decreased learning capability and that older adults become confused and forgetful. Declining mental ability is considered as a feature of growing old.

There are also lots of effects in nervous system. Ageing may affect all aspects of nervous system from mental status to sensory and motor function and reflexes. The age related changes nervous systems from manifestations of specific mental disorders prevalence increases with ageing such as depression and dementia.

A cross sectional study of fall in the elderly people at 815 bed hospitals was conducted. Retrospective interview of the patients and staff nurses was used in this study. Descriptive design was used in this study. The findings conclude that fall risk can be predetermined and nursing actions can be taken to reduce the occurrence and severity of diseases and also to reduce the deteriorious effects of fall in the elderly, knowledge based practice is essential. The results support the hypothesis that Falls are usual in elderly patients (Journal of Nursing scholarship, 1998).

A descriptive study of community based centres were surveyed to determine frequency and risk of Falls among elderly Koreans. 351 elderly people aged 65 years or older with ambulatory was conducted. 42% reported at least (episode of falling in previous 12 months), 38% of whom had consequences that required either attention of physician or hospitalization. The results show that fall among elderly is a common problem in Korea. (Sohng, 2004)

A descriptive study of Balance tests for older adults with terms of fall risk assessment along with association of Balance and Gait problems were conducted. A total of 153 individuals were investigated. The subjects are subdivided between fallers and non-fallers. The results show that those who are fall over the last 12 months were suffered from Balance and Gait problems like scoliosis, lordosis, functional imbalances. (Borovichsz, 2016)

A study of elderly patient aged above 65 years in a nursing home was conducted. Retrospective design was used in this study. The results conclude that the people with cognitive impairment can experience the motor dysfunction, including the deficits in the Balance and Gait. (Bahureksa, 2017)

A retrospective study in 5 nursing homes at Poznan, Poland of 153 individuals aged above 65 years was conducted. The subjects were subdivided between Fallers and Non-Fallers. Descriptive design was used in this study. Out of 153 subjects, most of them had a risk of fall. The results show that risk of Falling increases with the age in both males and females over the age of 65 years (Adrianna Browmiz, 1999) In the current scenario, due to increase in lifespan, there is increase of old age. Our focus is to provide a good quality of life for the people. By reviewing literature, falls is the major cause for the older adult's impaired physical activity. So we felt there is a need to identify older adults with a risk of falls and to create awareness among them to prevent falls and to check their balance and gait.

### Statement of the problem

Assessment of Balance and Gait among older adults in selected outpatient departments of PSG hospitals, Coimbatore.

### Objectives

- To assess the balance and gait problems among older adults.
- To associate the Balance and Gait problems among older adults with their selected demographic variables

**Research methodology**

Descriptive design was used for this study. Here this design acts as the measurement tool for the assessment of Balance and Gait among older adults. The study was conducted in outpatient departments such as General medicine and Geriatrics department of PSG hospitals, Coimbatore. Purposive sampling technique is used in this study. Sample size is 31

**Instruments and tool for data collection**

Tool consists of two sections

**Section A: Demographic variables**

Demographic variables such as Age, Gender, Occupation, Education, Marital status, Area of residence and History of medical illness.

**Section B: Tinnetti Balance and Gait Assessment Tool**

A simple screening tests of balance strength and cerebellar function includes asking the client to do the following manoeuvres: Arising from chair without using his or her arms, Walking normally, Standing with the feet together, First with the open eyes and then closed, Supporting body weight, First on the heels and then on the toes, and then Sitting back down, etc. Tinnetti Balance and Gait

assessment tool (1986) was used. In Balance tests, nine positions and position changes are evaluated. In Gait tests, seven components of Gait were observed and evaluated.

**Table:**

| S. No | Score (Out of 28) | Interpretation                                 |
|-------|-------------------|--|
| 1.    | A score below 19  | A High risk for Falls                          |
| 2.    | A score of 19-24  | A Greater chance of Falls, but not a high risk |
| 3.    | A score of 25-28  | Stable patient (no risk for Falls)             |

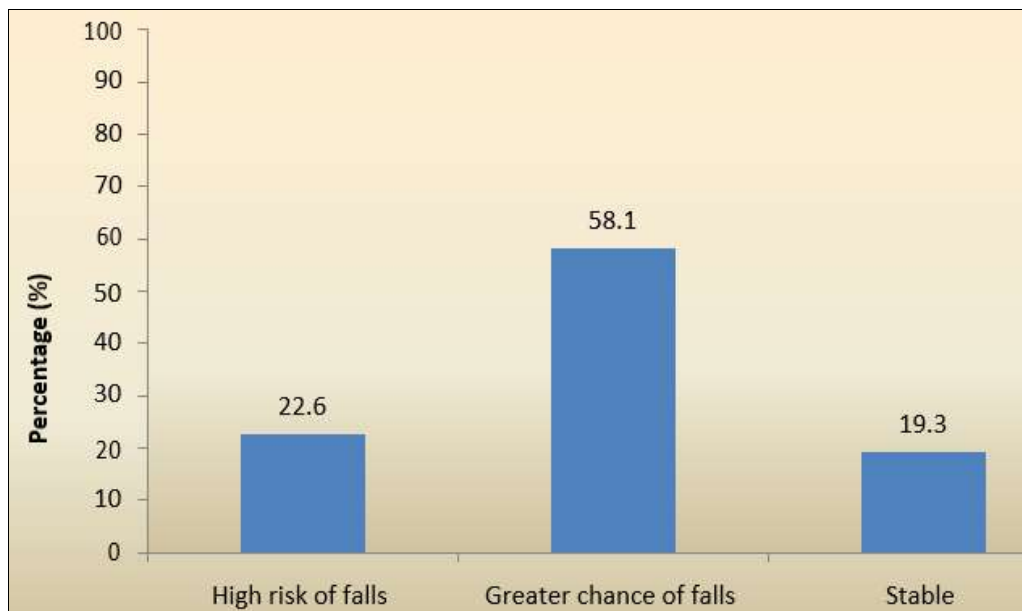
**Results**

In this study, 31 older adults were selected with the group of 65-80 years of age, majority of them(51.6%) are in the Age group of 65-70 years, majority of them are Male(64.5%), majority of them (48.4%) attended Primary education, majority of them(45.2%) are Unemployed, majority of them (96.8%) are Married, majority of them(61.3%) have their Residence in Urban area, all of them (100%) are get rid of the Medical illness.

Overall assessment of the older adults reveals that 22.6% of them have high risk of falls regarding the Balance and Gait problems, 58.1% of them have a greater chance of falls regarding the Balance and Gait problems, 19.3% are stable regarding the Balance and Gait problems.

**Table 1:** Frequency and Percentage distribution of Balance and Gait problems among older adults in selected outpatient departments of PSG hospitals n= 31

| S. No | Scoring Interpretation          | Frequency | Percentage (%) |
|-------|---------------------------------|-----------|----------------|
| 1.    | High risk of Falls (Below 19)   | 7         | 22.6%          |
| 2.    | Greater chance of Falls (19-24) | 18        | 58.1%          |
| 3.    | Stable (24-28)                  | 6         | 19.3%          |



**Fig 1:** Distribution of risk of fall

Significant association between Balance and Gait problems with their demographic variables of education and occupation.

**Suggestions**

- Even though Balance and Gait problems are common among older adults, as a preventive measure, this study

can be done among younger adults aged between 45-60 years.

- The same study may be conducted on a large sample.

**Recommendations**

Education can be given to the older adults regarding normal health deterioration as a Routine in Geriatric OPD

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