IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Analysis Of Balance Control And Gait Performance In Older Adult

[1]Balraj Sharma, [2]Dr. Prof. C. R. Shamsheer Begum, [3]Smt Shamala Sherkule, [4]Mrs. Samiksha, [5]Dr. J. Sathya Shenbega Priya

[1]Assistant Professor, [2]Principal, [3]Assistant Professor, [4]Assistant Professor, [5]Principal

[1]Department of Mental Health Nursing,

[1]Liberty College of Nursing Jaipur, Rajasthan, India

[2]MIMS School College of Nursing, Vizianagaram, Andhra Pradesh, India

[3]College of Nursing Govt Medical College Nagpur, Maharashtra, India

[4]Shree Digambar Institute of Nursing, Bharatpur, Rajasthan, India

[5]College of Nursing, Kannur medical college, Anjarakandy, Kannur, Kerala, India

Abstract:

Balance is the ability to sit, stand and walk comfortably without losing the balance, falling or having to lean or support. Gait or walking is a pace, which is an integrated activity of both neuromuscular and musculoskeletal systems. This paper was targeted to detect balance and gait issues in elderly individuals. The descriptive design of a quantitative research method was employed, and Tinetti Scale was the instrument to measure these problems. Out of the 31 respondents who had been of age 65 years, 22.6% had a high risk of falling, 58.1% were likely to fall and 19.3 had an unstable condition. The demographic variables of education and occupation had a significant relationship with balance and gait problems.

As one grows older, gait tends to become characterized by decreased step length and decreased foot lifting since proprioception is also declining. Shuffling can also be a consequence of declining speed, balance and gait efficiency during the passage of time. This research aided in identifying elderly people at risk of falling and experience some challenges in doing daily tasks. Hence, it may be useful in keeping track of mobility alterations in the course of time.

Index Terms - balance and gait, older adults, outpatient departments, balance and gait maneuver

I. INTRODUCTION

"To overcome the coldness of old age, a person must nurture the body, mind, and heart."

— **Charles Victor de Bonstetten (2000)**

India is a country that has a fast-increasing number of the aged with close to 104 million aged persons of which 53 million are women and 51 million are men. This figure will continue to increase consistently, and it means that the number of older adults will increase significantly in the next generations. The rapid process of urbanization undermined the traditional family values and changed the socioeconomic priorities despite the fact that already in India, there are approximately 100 million people, who are over 60 years old. Consequently, the effect of this demographic change is causing some significant problems especially to the healthcare sector.

The US census bureau estimates that before the midpoint of this century, the aged Indians will be four times, but the elderly population in the world will have tripled. The number of persons aged 65 and older years in the whole world is estimated to increase to 1.53 billion in 2050 as compared to 516 million in 2009. Comparatively, the population of the aged is set to increase twice in the United States. In China and India, the number of older adults in these nations is relatively small though these countries have the highest population in the world.

The average and the maximum life expectancy have risen considerably in the majority of developed countries and it is proceeding to do so. But it is not ageing per se that is of concern to the primary healthcare system, it is the rising occurrence of frailty and other chronic diseases that are linked to add or increase in age.

It has been contributed by a decrease in fertility rates, combined with an increase in life expectancy, resulting in significant changes in age structure of the population, which has increased the number of ageing people. In India, mortality and fertility trends in the past indicate that the ageing process occurred more in the 1990s. India is a country where the number of elderly people grew to 72 million by 2001 (updating 56.7 million in 1991), and is likely to be 137 million by 2021. One out of every ten elderly individuals worldwide live in India, and the number of middle-aged and elderly people as well as its proportions are set to increase in the future.

Of the aged population of India approximately 78 percent are rural dwellers. Older adults are usually reliant on other people and that may hinder the amount of independence and freedom that they enjoy. They can also encounter economic, physical and psychological dependency. Moreover, there are still a number of negative stereotypes present with regard to older adults, including the perspective that ageing is an inconvenience, older people are always disabled, or that they are unattractive.

Health screening tools can be further developed to incorporate questions that are more specific in nature so that health issues are identified at the earliest stage to facilitate prompt action, where the family and other involved caregivers are also taken into consideration. With the increase in life expectancy, nurses and other professionals in the field need to be more equipped in taking care of the rising number of the elderly. It is also important that the normal effects of ageing and the changes which are by disease is variously segregated. The changes in the structure and functioning of various body systems can affect the appearance of an older adult, his/her mobility, and resistance to infectious diseases.

Although healthcare is frequently focused on giving older and frail people the much-needed medical and social assistance, it may harm them as they may start to feel less significant or incapable. They can be encouraged to engage in reciprocity and participate to ensure social inclusion, autonomy, dignity and quality of life in general.

-- Myrra Vernooij (1998)

II. NEED FOR STUDY

"One has to integrate the body, the mind and the heart in order to fight the coldness of old age."

- Charles Victor de Bonstetten.

India has been experiencing a fast demographic transition as the number of its elderly population is continuously growing. Recent population statistics show that there are currently approximately 153 million people aged 60 years and above in the country with this figure set to continue growing to 347 million by 2050. By the year 2050, the percentage of the population in India has already been projected to be over 20 percent of the total populations and by 2046 the senior citizens are likely to exceed the number of children between 0-15 years. Moreover, the age group 80 and above is expected to increase tremendously in number between 2022 and 2050, reflecting the growing demand in the long-term health and social care provisions.

Ageing of the population at the international level is worsening too. The World health organization estimates that in the year 2030, one out of six individuals in the world will reach the age of 60 years and above. The number of individuals aged 60 and above worldwide is predicted to increase to 1.4 billion in

2030 and 2.1 billion in 2050 and surpass 1 billion as at 2020. As a majority of 2050 people are living in the low- and middle-income countries, the population of those aged 80 years and above is predicted to be 426 million. The problem of ageing brought by these demographic changes is generating significant issues in health systems particularly due to the fact that ageing is usually accompanied by frailty, multimorbidity, reduced mobility as well as functional independence.

Falls are some of the gravest health risks in the elderly. According to WHO, falls are the second major cause of unintentional injury deaths on the global scene with an estimated 684,000 deaths caused by falls annually and 37.3 million falls requiring medical care annually. The elderly, especially older adults (above 60 years) are the ones who are most susceptible to serious crash injuries, disability, hospitalization, and lack of autonomy in terms of the consequences of falling. Geriatric care should also include screening frequently and intercessory action since imbalance, gait abnormality, lack of mobility, as well as impaired vision are key factors associated with falls.

Healthy ageing and elderly care have gained more focus in the past few years. Countries have been encouraged by the UN Decade of Healthy Ageing to build on the integrated care, long-term care, and age-friendly systems and WHO provided further guidance on monitoring this work in 2025. In India, support on elderly healthcare was formally increased with the Government granting Ayushman Bharat PM-JAY coverage to all elderly individuals aged 70 years and above, regardless of their income, and with health insurance coverage of up to [?]5 lakh per year. This is one of the measures which indicate the increased awareness that older adults need greater protection in terms of medical, social and financial areas.

With the life expectancy ever growing, nurses and other healthcare practitioners need to be ready to address the diverse needs of the ageing population. One should differentiate between the normal age-related changes and the pathological conditions, as the changes that occur in the various body systems may influence the appearance, strength, mobility, immunity, and quality of life in general. Other interventions suggested by WHO include gait and balance training, home modification, multifactorial fall-risk assessment, and personal preventive care against older people. Thus, balance and gait assessment in older adults is very significant to ensure early supersession of fall risk, occurrence of complications, and healthy and independent ageing.

III. Statement of the problem

Assessment Of Balance and Gait Among Older Adults in Selected Outpatient Departments of Rungta Hospitals, Jaipur.

IV. Objectives

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

V. Research Methodology

A descriptive research design was adopted for this study. This design served as the framework for assessing balance and gait among older adults. The study was carried out in the outpatient departments of General Medicine at Rungta Hospital, Jaipur. A purposive sampling technique was employed to select the participants, and the sample consisted of 31 older adults.

VI. 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: Tinetti Balance and Gait Assessment Tool is a device of a basic screening tool that is applied to test balance, muscle strength, and cerebral functionality. It constitutes making the client do a series of tasks,

including getting out of the chair without using the arms, walking, standing with feet together firstly with eyes up and then closing and supporting body weight with heels and then toes and gradually back to the chair. This study involved the use of the Tinetti Balance and Gait Assessment Tool (1986). The tests performed in the balance part comprised nine positions and changes in posture, whereas conducted in the gait part were seven gait components that were observed and measured.

Table 1 : Scoring Method

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)

VII. Results

There were 31 older adults between the ages of 65 and 80 who were selected in this study. Over fifty-one percent (51.6) of the respondents were aged between 65-70 years. The majority were male (64.5%). Almost a half of them (48.4) had finished primary education, and 45.2% of them had no jobs. The majority of the participants (96.8%-100% of the respondents), were married and 61.3% were residing in urban centers. None of them (100 percent) had any medical illness. The conclusion was that 22.6% of older adults were at the risk of falls based on balance and gait, 58.1% were at increased risk of falls and 19.3% of older adults were found to be stable as far as balance and gait are concerned.

Table 2: 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 (%)
	High risk of Falls (Below 19)	7	22.6%
	Greater chance of Falls (19-24)	18	58.1%
	Stable (24-28)	6	19.3%

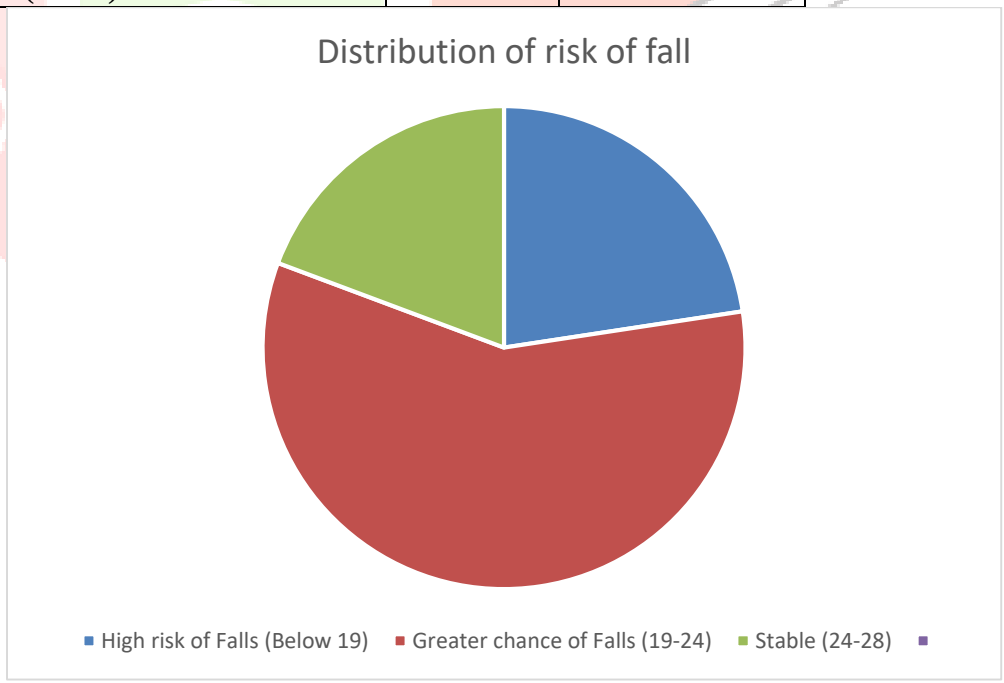

Fig 1: Distribution of risk of fall

VIII. Suggestions

Whereas balance and gait issues are widely observed in cases of children who are elderly, parallel research may be conducted in the cases of children who are younger and aged between 45-60 years to prevent the occurrence of balance and gait problems.

The research can be done again with an increased sample as well.

IX. Recommendations

Education on the health-related aging can be educated to older adults in the Geriatric outpatient department on a regular basis.

I may likewise render this more formal to the discourse, proposal and recommend section of your project.

REFERENCES

1. Bergland Jarnlo GB, Laake K. Predictors of falls in the elderly by location, aging clinical experience Res 2003;15:43-50.
2. Wolf Swift JB. Determining Lyapunov exponents from a time series Physical D 1985;16:285-317.
3. Dr. B Krishnasamy. Falls in older adults, National and regional review of India 2010.
4. Jane Ball W. Seidal's guide to physical examination, edition, Elsevier publication 2018.
5. Dingwell JB, Cusumano JP, Sternad D. Speeds in patients with diabetic neuropathy lead to improved local dynamic stability of continuous over ground walking J Biomech 2003;33:126.
6. Javedansan. A textbook of medical surgical nursing, 1st edition, Pee Vee publications.
7. Cofre JR, Pijnappeles M, Van Schhoten JH. Centre of pressure or centre of mass feedback in medio lateral balance assessment, J Biomech 2015;48:539-543.
8. Wingert JR, Welder C. Age-related hip proprioception declines; effects on postural sway and dynamic balance" Arch Physics Medicine Rehabilitation 2014;95:253-261.
9. Van Schooten KS, Pijnappeles M, Elders PJM. Ambulatory fall risk assessment: amount and quality of daily life gait predict falls in older adults J GerontolSer A 2015.
10. Van Schooten KS, Brujin SM. Sensitivity of trunk variability and stability measures to balance impairments induced by galvanic vestibular stimulation during gait Gait Posture 2011;33:656-660.
11. Cofrelizama LE, Pinjnappeles M. Age effects on medio lateral balance control PLOS ONE 2014;9:757.
12. Lewis. Text book of medical-surgical Nursing, Elsevier publications 1499-1503.
13. Hak L, Houdijk H, Mert A. Stepping strategies for regulating gait adaptability and stability, J Biomech 2013;46:905-911.
14. Toebes MJP, Dekker J. Local dynamic stability and variability of gait are associated with fall history in elderly subjects Gait Posture 2012;36:527.
15. Pardasaney PK, Latham NK, Jette AM, Wagener RC. Sensitivity to change and responsiveness of four balance measures for community dwelling older adults Physical therapists 2012;93:388-397.
16. Baloh RW, Ying SH, Jacobson KM. A longitudinal study of gait and balance dysfunction in normal older people Arch Neurol 2003;60:835-839.
17. Brauer SG, Burns YR, Galley P. A prospective study of laboratory and clinical measures of postural stability to predict community dwelling fallers J Gerontolser A. Biol Sci, 55(200), M469-M476
18. Shanthi. Risk factors for falls in the elderly, journal of Indian academy of geriatrics 2005.
19. Brujin SM, Bregman DJJ, Beek PJ. Maximum lyapunov exponents as predictors of global gait stability Med Eng Phy 2012, 34.
20. Brujin SM, Meijer OG, Beek PJ. Assessing the stability of human locomotion: a review of current measures J R Soc Interface/ R Soc 2014;11:54-61.
21. Rispens SM, Pijnappeles M. Fall related gait characteristics on the treadmill and in daily life 2014.
22. Rispens SM, Pinjnappeles M, Beek PJ. Identification of fall risk predictors in daily life measurements; gait charcteristics, reliability and association with selfreported fall history Neuro rehabilitation Neural Repair 2015;29:201.

23. Tinneti ME, Richman D. Falls efficacy as a measure of fear of falling J Gerontol 45, 239-243
24. World Health Organization. Global report on prevention on falls in older age 2007.
25. World Health Organization WHO (Ed), good health adds life to years; global brief for world health day 2012, WHO, Geneva, Switzerland 2012, 28.