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Balance among elderly population

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Abstract
Introduction: Aging is associated with a progressive decline in physical capabilities and a disturbance of both postural control and functional mobility. Balance is essential for maintaining postural control and performing various functional activities.
Aim: The aim of this study is (i) to assess balance impairments in the elderly population. (ii) To identify how gender differences affects these impairments.
Methodology: A sample of 80 subjects was selected from community, consisting of male and female both. Study duration was four months. Then subjects were undergone screening for any cognitive impairment. After screening, all the subjects were assessed using Berg Balance Scale (BBS) and the timed get-up-and-go Test.
Result: Out of 80 participants, more than half of the population (59%) had some kind of problem in maintaining balance. In the study population 40 were females and 40 were males. Impairments were more common in females (65%) compared to male.
Conclusion: It was found that as the age increases balance impairments and risk of fall also increases while Berg Balance Score decreases and according to this study females was more prone to these impairment.

Keywords: balance impairment, elderly population, berg balance scale (BBS), timed up and go test (TUG)

Introduction

The aging process usually affects body systems and is commonly associated with functional changes in the neuromuscular, somatosensory, vestibular and visual systems. Aging is generally associated with progressive declines in physical capabilities, psychological health postural control and daily living activities. Balance is essential for maintaining postural control and performing various functional activities. Functional balance is the ability to maintain a stable position during various functional tasks. Proactive balance refers to an anticipation of a predicted disturbance as compensation for a disturbance. Balance disturbances are major epidemic geriatric health problems because they are associated with the fear of falling and mobility restrictions as well as causing substantial rates of mortality and morbidity (from 30% to 60%) among older subjects. Balance impairments with functional dependencies can be improved with appropriate exercise intervention [1].

Balance control is multi-dimensional, and requires a complex sensory, neuromuscular and central processing system. The ability to maintain balance depends on the visual, vestibular, auditory, somato-sensory and motor systems. Disorders involving any of these systems cause disequilibrium [2].

It is important for elderly people to be able to perform their daily activities, maintain functions, and retain their independence and autonomy [4]. Some factors have been shown to have an effect on balance such as: age, physical activity and weight. We are conducting this study to identify the effect of aging on the balance and functional mobility among elderly population.

Aim

The aims of this study are

1. To assess balance impairments in the elderly population.
2. To identify how gender differences affects these impairments

Methodology

Study type

Survey based study.

Sample Size

80 Subjects were selected from community, consisting of male and female both. Subjects were between 60-70 years. We have divided the population among two groups 60-65, 66-70. The study duration was four months.

Materials

- Step
- Chair
- Stopwatch
- Measuring Tape, and
- Ruler.

Inclusion criteria

- **Sex:** Male and female.
- **Age:** 60-70.
- **MMSE Score**: normal cognition on mmse scale (above 24).

Exclusion criteria

- The subject who were uncooperative and having another neuromuscular problem were excluded.
- Any Diagnosed case of psychiatric illness, and
- Any diagnosed case of cardiovascular instability.

Procedure

For study research, a sample of 100 subjects was selected. According to the inclusion and exclusion, each patient was explained the purpose of the study and a consent form was given to be filled by the patient. All the subjects who were willing to participate divided among two age group i.e.60-65, and 66-70, to find out which age group is more prone for occurrence of impairments in gait pattern. Then subjects were screened for their cognitive ability. After screening, all the subjects were assessed for any impairment using Berg Balance Scale. Patients were also assessed by Timed get-up-and Go Test for the impairments in balance and functional mobility.

Outcome measure

- **MMSE**

  Berg Balance Scale: The BBS includes 14 activities (balance tasks). Each participant was asked to perform functional activities such as sit-to-stand, stand-to-sit, and transfer; each of these tasks was measured on a 5-point ordinal scale ranging from 0 to 4 (0indicates that patient is unable to perform the task while 4 indicates complete independence). The sub-test scores were summated to achieve a total score ranging from 0 to 56. Higher scores indicated a better performance [3].
- **Timed get-up-and-go test:** Each participant was asked to take a standing position from a comfortable sitting position on an armchair. The participant was asked to walk three meters, turn, and return to the chair. Each person did this task three times and the mean values of the total time were calculated [3].

Result

Out of 80 participants, more than half of the population (59%) had some problem with their balance. In the study population, 40 were females and 40 were males. Impairments were more common in females (65%) compared to male.

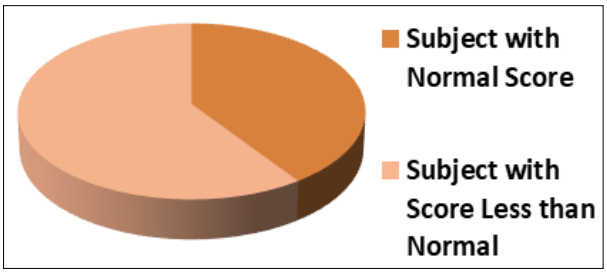
Table 1: Frequency of balance impairments. (n = 80)

Gender	Fe Male	Male
N (Percentage)	40(50%)	40(50%)
Impairments in Balance and Functional Mobility.	26 (65%)	21 (52%)

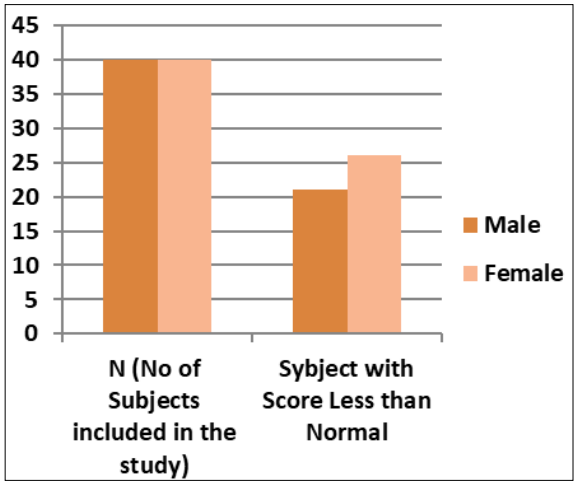
Table 2: Frequency of balance impairments according to gender

Characteristic	Males (*n* = 40)	Females (*n* = 40)
Height [cm], mean (SD)	171.6 (6.2)	150.5 (5.8)
Weight [kg], mean (SD)	79.8 (13.0)	73.2 (14.5

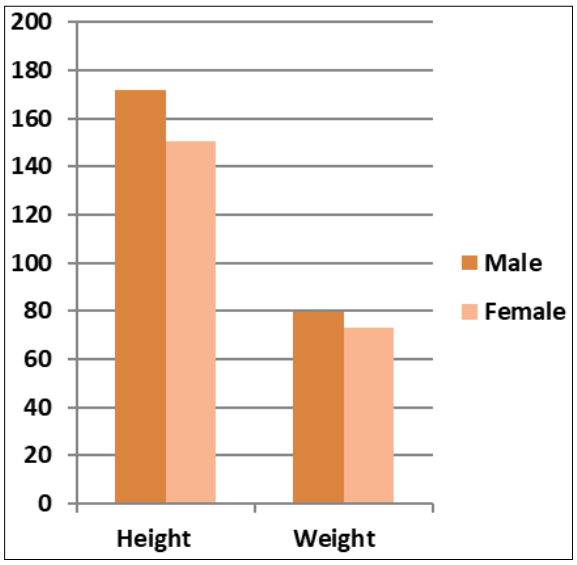
Table 1.2- Demographic Characteristics



Graph 1: Prevalance of Balance impairments among elderly Population



Graph 2: Frequency of balance impairments according to gender



Graph 3: Demographic characteristics of participants

Discussion

The Purpose of this study was to evaluate the important information that can be transferred directly to clinical practice to facilitate the identification of elderly population older adults at an elevated risk for balance and functional mobility impairment.

We found a negative correlation between BBS and TUG performance and age. Previous studies have reported that females are prone to accidental falls at a younger age than males because women reach their peak muscular performance earlier in life. Therefore, body functions, balance, and gait may decline earlier in women. In our study, we found those females are more prone to balance impairment in comparison to the males. We also found a negative correlation between BBS score and age of subject, which indicates that as age increases, balance impairments and problem with functional mobility, tends to increase.

The BBS and TUG are reliable and valid measure for assessment of functional activities in older adults [4].

We have conducted this study to identify balance impairments in elderly population so that we can prescribe exercise to them in order to improve their balance (both static and dynamic) and functional mobility because there are evidence available which shows that supervised and home exercise programs significantly increased balance

performance. Although the supervised exercise program was superior to the home exercise program in restoring functional activities including BBS and TUG as well as IMS of the lower limbs in older Participants [5].

Limitations of Study

- Small sample size.
- Only urban population is included.

Conclusion

In this study, we found that Balance impairments are present in elderly population. We have also identified decrease in functional mobility.

References

1. Enas Fawzy Y, Alsayed Shanb. Supervised versus home exercise training programs on functional balance in older subjects. Malays j med sci. 2016; 23(6):83-93
2. Gbiri CA, fabunmi AA. Gender influence on balance performances in the elderly. Sa journal of physiotherapy. 2006; 62:3.
3. Physical Rehabilitation (Sullivan)
4. Carlos Kazuo Taguchi, Jacqueline Pitanga Teixeira, [...], and Oscar Felipe Falcão Raposo. Quality of Life and Gait in Elderly Group. Int Arch Otorhinolaryngol. 2016; 20(3):235-240. doi:10.1055/s-0035-1570313
5. Enas Fawzy Y, Alsayed Shanb. Supervised versus home exercise training programs on functional balance in older subjects. Malays J Med Sci. 2016; 23(6):83-93.