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Incidence of Falls and its Association with Quadriceps Muscle Strength among Institutionalized Older People: A Cross-sectional Study from Colombo District

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Background: Older people who dwell in institutions may experience higher morbidity issues and mortality rates compared to community-dwelling older people. Falls and fall-related injuries are one of the most leading causes of disability and death among older people. As one of the most powerful lower limb muscles, the quadriceps play an important role when preventing falls among older people.

Objectives: To determine the incidence of falls and its association with quadriceps muscle strength among older people who dwelt in most leading two elderly institutions in the Colombo district.

Methods: A cross-sectional study was conducted under the non-probability convenient sampling method at Salina Alwis and Sahana Udaya elderly institutions with the older people who completed inclusion criteria. Ethical clearance was first obtained by the Ethical Review Committee of General Sir John Kotelawala Defence University. A total of 60 participants aged 65 years and above were included. A fall risk assessment questionnaire was used to obtain fall history within 6 months. Left and right quadriceps muscle strength was measured using a modified sphygmomanometer test.

Results: Among 56.7% females and 42.3% males, the mean±SD age of the participants was 76.67±6.23 years. The incidence of falls among older people in both elderly institutions was 38.3%. The mean values of quadriceps strength among falls and non-fall groups of older people were 116.00 mmHg and 161.13 mmHg, respectively. A significant difference in mean quadriceps strength was obtained among the falls and non-falls groups.

Conclusions: The results revealed that fall prevalence in the two institutions was higher than the global prevalence (28-35%) of falls in the elderly. Deprivation of quadriceps muscle strength in older people directly affects their fall incidence. The results are important to prevent falls and to improve self-confidence by improving quadriceps strength in institutionalized elderly in Sri Lanka.

Key words: *Elders homes, Falls prevalence, Modified Sphygmomanometer test, Older people, Quadriceps muscle strength*