

Prevalence and the problem of falls in older persons

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Falls are a major cause of morbidity and mortality in older persons, and the consequences of a fall may impact an individual severely. The management costs, both tangible and non-tangible, of fall related injuries, particularly fractures, are high for individuals, their family and society at large. Although prevalence rates for falls in older populations have been established in more developed countries, comparatively little is known of the incidence and prevalence, and risk factors for falls in older populations in less developed countries. Until recently, no prevalence rate had been available for falls in older persons in South Africa. Knowledge of the incidence and prevalence of falls, and associated risk factors, and prudent prevention and effective management of falls are relevant in the public health domain.

A fall may be defined as an episode in which a person comes to rest on the ground, floor or other lower level with or without injury. Although falls occur in all age groups, older persons may also be more prone to falls than younger persons. Maintaining an upright position is dependent on the normal functioning of a number of systems such as vision, vestibular function, muscle strength and joints, sensation and position sense and cognitive function for central processing of information. Diseases, particularly chronic or non-communicable diseases, some drugs used to manage these diseases and age related physiological changes such as slowed protective reflexes, gait and visual changes, compromise compensatory ability to prevent a fall (1).

The incidence and prevalence of falls, and complications following a fall, increase steadily after the age of 65, and occur in 30-60 per cent of the older population annually, reaching 50 per cent in persons aged 80 years and older. Half of the older persons who fall have recurrent falls (≥ 2 falls in a 12-month period). Falls are more common in women than men, and occur most commonly in or around the dwelling (1).

Rates of falls reported for non-Caucasian populations are approximately half of those for Caucasian populations in Western countries, USA and Canada. A mean rate of 18 per cent has been reported in China, Hong Kong, Taiwan and Thailand, and native and Japanese-American older populations. Fall rates in community dwelling older persons (meaning those who are not in assisted living or nursing homes) in Brazil range from 16 per cent to 29 per cent (1), while a study in Nigeria reported a prevalence rate of 23 per cent (2).

Twenty to 30 per cent of older people who fall suffer serious injuries such as hip and other fractures, head injury, subdural haematoma and major soft tissue injury such as lacerations. Fractures, particularly of the hip, are a major cause of morbidity and mortality.

Approximately a quarter of older individuals who sustain a hip fracture die within 6 months and 60 per cent have restricted mobility (3,4). Even in the absence of an injury a fall has psychological consequences for an older person, such as fear of falling, loss of confidence, and functional decline with increased dependency, in some cases leading to institutionalisation, depression and social isolation. Inability to get up following a fall and a long lie (\geq one hour – a poor prognostic sign) may lead to pneumonia, dehydration and pressure sores (5).

Non-accidental falls result from an interaction of multiple risk factors resulting from physiological and pathological changes, some of which are modifiable and preventable. Risk factors for falls may be classified as biological, behavioural, socio-economic and environmental (1,6). Examples of biological factors include acute illness, chronic disease and disability such as stroke, dementia, arthritis, diabetes, heart disease and incontinence. Behavioural factors include fear of falling, lack of exercise, risk taking behaviour, lack of sleep, inappropriate footwear/clothing and inappropriate use of walking aids, excessive use of alcohol, use of multiple medications (\geq 5 medications), and use of certain medications such as sedative/hypnotic, antipsychotic and antidepressant drugs. Socio-economic factors associated with falls relate to poor living conditions, low income, poor nutrition, lack of support network. Finally environmental factors include poor building design and/or maintenance, slippery or uneven surface, obstacle and trip hazards, mats/rugs, lack of rails and grab bars on stairs and in the bathroom and other home hazards (1,6).

A falls prevalence study in Cape Town

To establish a prevalence rate for falls, and to identify risk factors for falls in an older population in South Africa, a study was conducted in three suburbs of Cape Town (Gugulethu, Plumstead and Wynberg) (7), which have a relatively high proportion of persons aged \geq 65 years. A randomly selected survey sample of persons aged \geq 65 years (total n=837) comprised 284 black Africans (33.8%), 392 coloureds (people of mixed ancestry) (46.8%), 140 whites (16.7%) and 22 Indians (2.6%), (few Indians reside in the Cape Town Metropolitan area). A baseline survey using structured interviews was conducted by specially trained field workers in subjects' homes. A follow up survey was done 12 months later and only 632 respondents completed the survey due to attrition. Data were collected on self-reported physical and mental health (including assessment for depression and cognitive function), and factors associated with falls. Physical performance assessments yielded measures of muscle strength, gait and balance.

The prevalence rate of falls in this sample was 26 per cent (and 11 per cent with recurrent falls) at baseline, and 22 per cent (6.3 per cent with recurrent falls) at follow-up. The incidence of falls was higher in women than men: 405.7/1000 versus 236/1000 person years, respectively. Prevalence rates differed however for ethnic sub-samples: at baseline, 42.9 per cent, 34.4 per cent and 6.4 per cent for whites, coloureds and black Africans, respectively. The number of Indians was too small for interpretation but 8 (38.1%) reported a fall.

An ethnic differential in the prevalence rates is interesting. Certain statistically significant differences in characteristics of the ethnic sub-samples, mainly socio-demographic and medical history, may have contributed partially to the differences. White subjects reported significantly more depression (15.0% versus 8.1%), and to be taking antidepressants (6.1% versus 3.9%) and/or antipsychotic drugs (9.3% versus 0.4%) than black African subjects. Percentages for coloured subjects fell in-between these rates. A major difference, and a plausible explanation for the differential, may be that the majority of black Africans (78.1%) had engaged in manual labour during their working life, compared to only 8.6 per cent of whites, which may have given them an advantage in terms of muscle function and balance. The reasons for the ethnic differential need further investigation.

Common risk factors for falls across the sub-samples were poor vision, poor urine control, foot disorders (ulcers, bunions, callouses and corns), chronic non-communicable diseases, depression and self-reported poor health. The most commonly reported consequences of falls were injuries, including fractures, fear of falling again, not having recovered fully from the effects of a fall, and having had to alter or forego certain activities.

Conclusions drawn from the study were that falls are common in older people, and impact negatively on their function and quality of life. Risk factors for falls are largely preventable and/or modifiable, indicating a need for health promotion and fall prevention intervention.

Prevention and management of falls

Although falls in older persons cannot be eliminated altogether, the incidence can be reduced. Preventing a fall is the most efficacious way to prevent morbidity and mortality, and other consequences associated with a fall. South Africa has no specific falls prevention programme; health promotion programmes for older persons have neither been fully developed nor implemented. The management of falls in older patients in clinical practice is inadequate. An earlier study showed that management of falls in patients who present at an emergency department focused on the injuries sustained, and little or no effort was made to establish causes of the fall, and to manage reversible or modifiable risk factors (8). The planning and implementation of appropriate interventions requires assessment of an older person at risk of a fall.

Case findings can be enhanced only if all older patients who consult a health professional are asked about falls in the previous year. An older person may be unwilling to admit to a fall: for cultural reasons, possibly shame (9), or through fear of loss of independence, and associated stigma of ageing and frailty. Older patients who present at a health facility following a fall, as well as patients reporting a fall – particularly ≥ 2 falls in a 12-month period, need evaluation. The evaluation should include medical history, history surrounding the fall, a physical examination, an evaluation of gait and balance, and investigation to exclude other underlying diseases. Frequently used tests for gait and balance include the

timed Up and Go test, the five chair-stands, and semi-tandem balance with eyes open and eyes closed.

Interventions to prevent falls

Interventions to reduce the incidence of falls are particularly effective when targeted at individuals at high risk of a fall. Various methods to prevent falls in older people have been devised and tested by practitioners and researchers. Those reported in the literature to be effective, applied either singly or in combination (1), include:

- Regular physical exercise, including walking and exercises aimed at gait and balance, strength and resistance training and flexibility.
- Vitamin D supplementation with or without calcium supplementation in individuals with low vitamin D levels. Vitamin D strengthens bone and improves muscle function.
- Withdrawal or modification of offending drugs, and education of medical practitioners in prescribing for older people. Regular monitoring and proper management of chronic diseases such as hypertension, diabetes and arthritis.
- Annual assessment of vision for refractive errors (glasses) or diseases such as cataract and glaucoma. Surgery for cataract has been shown to reduce the rate of falls.
- Home safety intervention – reduction of clutter in walk ways, improved lighting, storage of items within easy reach (to avoid having to climb on a chair or stool), elevated toilet seats, non-slip mats and grab bars in bathrooms, and handrails on stairs.
- The use of hip protectors in individuals who are frail reduces risk of fracture following a fall in 60 per cent. However, user compliance has been shown to be poor (10).

In conclusion, increased public awareness of the risk of falls in older persons, risk factors for falls, and consequences of falls, as well as intervention strategies and programmes to prevent falls are needed in South Africa. Education and training of health professionals at all care levels, particularly at primary level (the point of entry to the healthcare system for the majority), on the assessment, management and impact of falls in older persons is similarly indicated.

Note that the views expressed in this article are those of the author(s) and do not necessarily represent the views of PHASA.

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