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## RESEARCH

### Prevenção de quedas em idosos domiciliados: promoção do envelhecimento ativo

Prevention of falls in the elderly in the home: promoting active ageing

Prevención de caídas en los ancianos domiciliados: promoción del envejecimiento activo

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#### ABSTRACT

**Objective:** To determine the frequency of falls and identify risk factors in the homes of the elderly under the Home Care Service of a village in Alentejo (Portugal). **Method:** Exploratory, descriptive study. The target group were elderly persons under the Home Care Service (23). The questionnaire consists of open and closed questions, and was based on the Jefferson Area Board for Aging Safety in the Home Assessment; Instrument to Assess the Risk of Falls and Adaptations to Prevent Falls at Home. **Results:** Of the 23 seniors, 13 were men; the mean age was 85; 10 widowers; 11 live alone; 12 cannot read or write; 17 have experienced falls, loss of balance being the main cause. They report changes in vision (21), hearing (14) and rheumatic diseases (14); hypertension (19); they use 4 or more drugs on a daily basis (16). **Conclusion:** The physiological changes associated with ageing may increase the risk of falls. Due to the consequences, it is a priority field in community intervention. **Descriptors:** Aged, Accidental falls, Risk factors, Nursing.

#### RESUMO

**Objetivo:** Conhecer a frequência de quedas e identificar fatores de risco no domicílio dos idosos do Serviço de Apoio Domiciliário de uma vila alentejana (Portugal). **Método:** Estudo exploratório, descritivo. O grupo alvo foram os idosos do Serviço de Apoio Domiciliário (23). O questionário é composto de perguntas abertas e fechadas, teve subjacente a Avaliação da Segurança em Casa de Jefferson Area Board for Aging; Instrumento para Avaliar o Risco de Quedas e Adaptações no Domicílio para Prevenir Quedas. **Resultados:** Dos 23 idosos, 13 são homens; idade média de 85 anos; 10 viúvos; 11 vivem sozinhos; 12 não sabem ler nem escrever; 17 sofreram quedas, o desequilíbrio foi a causa principal. Referem alterações na visão (21), audição (14), doenças reumáticas (14); hipertensão (19); usam 4 ou mais medicamentos diariamente (16). **Conclusão:** As mudanças fisiológicas decorrentes do envelhecimento podem aumentar o risco de quedas. Pelas consequências é um campo prioritário da intervenção comunitária. **Descritores:** Idoso, Acidentes por quedas, Fatores de risco, Enfermagem.

#### RESUMEN

**Objetivo:** Conocer la frecuencia de caídas e identificar los factores de riesgo en los domicilios de ancianos del Servicio de Asistencia Domiciliaria en el Alentejo (Portugal). **Método:** Estudio descriptivo, exploratorio. El grupo objetivo fueron los usuarios mayores del Servicio de Asistencia Domiciliaria (23). El cuestionario consta de preguntas abiertas y cerradas, tenían la seguridad subyacente Inicio de Evaluación de la Junta Jefferson Área para el Envejecimiento; Instrumento para Evaluar el Riesgo de Caídas y adaptaciones para evitar caídas en el hogar. **Resultados:** De los 23 ancianos, 13 eran hombres, con una edad media 85, 10 viudos, 11 viven solos, 12 no saben leer ni escribir, 17 han sufrido caídas, el desequilibrio fue la causa principal. Refieren cambios en la visión (21), escuchar (14), enfermedades reumáticas (14), hipertensión (19), con cuatro o más medicamentos diarios (16). **Conclusión:** Los cambios fisiológicos relacionados con el envejecimiento pueden aumentar el riesgo de caídas. Las consecuencias es un ámbito prioritario de intervención comunitaria. **Descriptor:** Anciano, Accidentes por caídas, Factores de riesgo, enfermería.

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## INTRODUCTION

The increase in the elderly population due to low birth rates and increased life expectancy, among other factors, has contributed to the ageing of the population. Due to the inherent consequences, the phenomenon of demographic ageing has been a matter of great concern.

Ageing can cause diseases in itself, which increase the demand for health services and the diversity of levels of care.<sup>1</sup> The importance of focusing on disease prevention and health promotion should be stressed, in order to contribute to active ageing, preserving functional capacity, independence and autonomy for the longest time possible.

In Portugal, the National Programme for the Health of Older Persons in 2006<sup>2</sup> intended to contribute to the generalisation and practice of the concept of active ageing in people over 65 years of age, so as to achieve gains in years of life with independence.

According to the WHO<sup>3</sup>, the policy framework for active ageing includes three pillars: health, social participation and security, the latter being closely linked to issues of protection, housing and social environment.

Security is a right of all human beings, with particular relevance to those who are most vulnerable. Effective security is essential to achieve active and successful ageing. Security plays an important role in the process of active ageing in relation to falls and architectural barriers. Falls are the leading cause of accidents among the elderly. Sensory changes, sight and/or hearing problems, changes in balance and musculoskeletal diseases, such as osteoporosis, are related to the increase in the number of falls.<sup>4</sup>

Five situations are classified as risk factors for the occurrence of falls: if the person has fallen at least once in the last year, the intake of four or more drugs per day, the presence of Parkinson's disease or if the person has suffered a stroke, if the person has balance problems and is unable to get up from a chair without using the support of at least one arm.<sup>5</sup> Other identified risk factors are: living alone; taking drugs (especially psychotropic drugs); the presence of chronic diseases; reduced mobility; cognitive impairment and dementia; reduced visual acuity; the use of canes and walking frames; slippery or uneven floors and degraded surfaces.<sup>6</sup>

In addition to the physical consequences, psychologically, falls also have other negative consequences, giving rise to the so-called post-fall syndrome, which causes feelings of insecurity and anxiety about the possibility of a further fall. Falls also have economic consequences, increasing the costs of health and social support.<sup>7</sup>

Given the relevance of this problem, the following research question was formulated: What are the risk factors of falls in the homes of elderly individuals registered under the Home Care Service in a village in the Alentejo Region (Portugal)?

The following objectives were defined:

- To determine the frequency of falls in the homes of elderly individuals registered under the Home Care Service of a village in Alentejo (Portugal);
- To identify the risk factors for falls in the home of these elderly individuals.

## METHOD

This is a study of an exploratory, descriptive and cross-sectional nature that takes a quantitative approach. The target group of the study were all elderly individuals registered under the Home Care Service of a village in the Alentejo Region (Portugal), totalling 23 persons. In order to recruit the population it was necessary to identify the elderly individuals registered under the Home Care Service, through the cooperation of its Managers after they had given formal authorisation.

For the evaluation of risk factors for falls in the home, a questionnaire was chosen as the instrument to collect data, consisting of open and closed questions applied after the completion of the pre-test on a sample population with characteristics identical to those of the study. It was created based on the literature, the Jefferson Area Board for Aging Safety in the Home Assessment;<sup>8</sup> Instrument to Assess the Risk of Falls<sup>9</sup> and Adaptations to Prevent Falls at Home.<sup>4</sup>

The questionnaire consists of four parts. Part 1 aimed to undertake a sociodemographic characterisation of the elderly individuals, part 2 featured the current state of health, part 3 identified the existence of changes in the mobility of the elderly individuals; the purpose of part 4 was to evaluate the safety conditions of housing in terms of the prevention of falls in the elderly.

All ethical principles inherent to conducting the study were followed, in accordance with the Declaration of Helsinki on Ethics in Research Involving Humans. The purpose of the study, respecting the right to self-determination, the signing of the informed consent form, the right to anonymity and confidentiality, as well as fair and equitable treatment before, during and after participation in the study, were explained to the participating elderly individuals. They were also informed that they could leave the study at any time without suffering any negative consequences.

The data were processed by computer using the statistical program *Statistical Package for Social Sciences* (SPSS). In order to systematise and enhance the information provided by the data, descriptive statistical techniques were used.



## RESULTS AND DISCUSSION

It was found that these elderly individuals were aged between 75 and 90, with a mean of 85. Regarding gender, 13 of the elderly individuals were male, and 10 female. Regarding marital status, 12 were married, 10 were widowed and 1 single.

Regarding education, 12 elderly individuals could not read or write, 10 received education up to the 4th year. One elderly individual can read and write, but did not attend school. Of the 23 elderly individuals, 17 were rural workers, who are now retired. Eleven elderly individuals live alone, 10 live with their spouse and 2 live with their spouse and child/children.

Risk factors for falls in the home were identified, which will be described below. Regarding medication, 16 use four or more drugs per day, 19 taking anti-hypertensive drugs, 3 take diuretic drugs, 2 take drugs to aid gastrointestinal motility.

In terms of current health problems, it was found that 21 of the elderly individuals had sight problems, 19 hypertension, 14 rheumatic disease, 14 hearing problems, 6 osteoporosis, 5 were obese, 2 had diabetes and 1 reported having venous insufficiency in the lower limbs.

Of the 23 elderly individuals, 14 indicated having difficulty walking, stating they need to use walking aids, a walking stick (11) and crutches (3). It was observed that 12 of the elderly individuals needed to support at least one arm in order to get up and 16 reported having balance problems.

Regarding falls, it was observed that 17 of the elderly individuals have already suffered falls. Of these, 7 have fallen once, 4 have fallen twice, 3 have fallen four times and 3 reported having fallen five or more times. Of the 17 who have suffered falls, 6 reported that they fell less than one month ago, 5 between one and six months ago, 1 six months to a year ago and 5 more than a year ago. The place where there was the highest incidence of falls was the backyard (13), followed by the stairs (1), the bedroom (3), the bathroom (3), the kitchen (2), the living room (2) and the corridor (1). The causes of these falls were dizziness (8), loss of balance (9) and trips (4). A total of 5 elderly individuals required hospitalisation due to fractured vertebrae (1), fracture of the scapulothoracic joint (1), pains in the joints (1), fracture of the neck of the femur (1) and muscle pain in the dorsal region (1).

After on-site observation at the elderly individuals' homes, the rooms described below were found. In the bathroom, all the elderly individuals have good lighting, 17 have a rubber mat in the shower and a non-slip mat next to the shower, 19 have a towel rack and a support for hygiene products, 10 have a fixed seat, 8 have a non-slip floor, 6 have an emergency light, 4 have safety bars in the shower and 3 have grab bars next to the toilet.

In the bedroom, there no loose electrical wires, 21 of the elderly individuals can support their feet on the floor when sitting on the bed and 19 have furniture fixed to the

floor. They all have access to light switches without getting up from bed, 19 have carpets that are not fixed to the floor and 4 have an emergency light.

In the kitchen, for 18 of the elderly individuals the cabinets are not high, 9 have a non-slip floor and 2 have carpets that are not fixed to the floor. All have good lighting. One person has loose wires on the floor and 5 have an emergency light.

In the living room, 12 of the elderly individuals have chairs with supporting arms, 11 report that the seats of the couches are soft and depressible, and all have lateral supports. All are well lit, none has loose wires in this room of the house and 7 have an emergency light. All have fixed furnishings.

Only 9 homes have stairs/steps. Of those homes that have stairs/steps, 6 have handrails, all have good lighting, no carpet on the first and last step and 6 of the elderly individuals report having difficulty walking up/down those stairs.

Ageing healthily, with autonomy and independence, makes us think about ageing throughout life, based on measures to prevent disease and promote health. Aspects such as promoting healthy lifestyles are important, such as physical exercise, healthy eating, safety factors, and these should be included in projects promoting active ageing. Thus, the collaboration of the entire community is required, as it is a collective, and not just an individual, issue.

The natural process of ageing may, in some way, contribute to a loss/reduction in functional capacity as a result of the deterioration of the physiological system. The decline in functional abilities, especially physical abilities, includes a reduction in muscle strength and a loss of balance, and these are identified as important risk factors for falls in the elderly<sup>(10)</sup>. Safety may involve some environmental changes, such as changes in architecture and also modification of certain behaviours.<sup>4</sup>

The elderly is the most worrying group in terms of falls. They are identified as the most frequent cause of mortality due to accidents after the age of 75.<sup>11-12</sup>

Falls occur more frequently in the elderly, in part caused by the changes inherent to the ageing process, such as degenerative osteoarticular diseases and decreased auditory and visual capabilities.

Other factors are also considered: depression, associated with social isolation and unsafe conditions in the home (loose rugs, inappropriate furniture, bathtubs without mats and without supports, staircases without handrails, objects placed at height and difficult to access, among others). Changes in gait, decreased muscle strength, joint stiffness, changes in balance due to decreased postural sensitivity are some of the changes due to ageing that may contribute to falls in the elderly.<sup>12</sup>

Living alone is also one of the risk factors for falls in the home.<sup>6</sup> A study in conducted in Barcelona showed that elderly individuals who are separated or divorced are highly likely to suffer falls. Mutual care, between partners, may explain the reduced rate of falls among those living with a partner.<sup>13</sup>

The use of drugs has been the subject of several studies as a risk factor for falls. In one study where the role played by psychiatric drugs, heart drugs and analgesics in the risk of falls among the elderly was investigated, it was concluded that benzodiazepines,

neuroleptics sedatives/hypnotics, antidepressants, diuretics in general, antiarrhythmic drugs and digoxin were associated with a higher risk of falls in people aged over 60.<sup>14</sup>

A study conducted for the purpose of determining whether there is an association between the use of psychoactive drugs in elderly individuals over 65 and the occurrence of falls showed that there were problems with the use of drugs among this group. Anxiolytics, antidepressants, anticonvulsants and anti-hypertensive drugs proved unsuitable for this population group, and were associated with falls.<sup>15</sup>

Falls are also responsible for 90% of hospital admissions, and fracture of the neck of the femur is the most common injury.<sup>9</sup> The origin of the fall may be related to intrinsic factors (arising from the physiological changes of ageing, disease and the effects of drugs) and extrinsic factors (social and environmental circumstances) that provide constant challenges to the elderly. A study of 50 elderly individuals showed that 28% of them died from the direct consequences of a fall (including fractures and neurological damage).<sup>16-17</sup>

The prevention of falls in the home is a fundamental pillar for safe and active ageing. Performing day-to-day tasks safely may require some architectural changes and/or adaptations of which nurses should be aware, thus focusing on home visits and work in and with the community.

## CONCLUSION

The survey allowed a diagnosis of the state of health of the elderly individuals registered under the Home Care Service in a village in Alentejo Region (Portugal) to be prepared in light of the risk of falls in the home, thus allowing the development and implementation of projects in the community to identify and eliminate risk factors for falls. For this, the entire community must be involved in a collective project for the achievement of an active old age, lived with autonomy and independence and based on health promotion and disease prevention activities.

Taking into account the literature that deals with issues of preventing falls among the elderly in the home, the results achieved and the objectives initially established highlight the isolation in which the elderly live, a high number of whom reported having current health problems, particularly sight problems, hypertension, rheumatic disease, hearing problems and osteoporosis.

The functional limitations that many elderly individuals face are associated with these problems (the need to support at least one arm to stand up and balance problems), and these result in difficulties in walking, which leads to frequent use of walking aids. In addition to the individual conditions, the housing context also represents a risk to the integrity of the elderly. Thus, the safety conditions of the home emerged as an additional risk factor, mainly due to a lack of grab bars in the bathroom, the use of carpets that are not fixed, floors that are not non-slip and the use of sofas with soft, depressible seats.



Resulting from the functional limitations and the unfavourable physical environments of the home, it was found that the majority have suffered falls, and these occurred mainly in the backyard. The causes of the falls were primarily dizziness, a loss of balance and trips. After the fall, some elderly individuals required hospitalisation as a result of fractures.

These data reveal that all the nursing work directed towards the prevention of falls in the elderly must address both the individual and the physical context surrounding the elderly individual. Thus, just as important as promoting an appropriate level of functionality through actions aimed at promoting the health of the elderly and active ageing, work centred on the context of the home, which effectively reduces the risk of falling, is essential.

Ageing brings with it physiological changes, resulting sometimes in situations of dependency, with the inherent social, health and family-related costs. It is therefore important to promote active ageing, based on quality primary care that will enable them to remain independent and autonomous for as long as possible.

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