


# Involvement of Older Adults, the Golden Resources, as a Primary Measure for Fall Prevention

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**Abstract:** Falls remain the second leading cause of injury-related deaths worldwide; therefore, longstanding practical fall-prevention efforts are needed. Falls can also lead to a reduction in independence and quality of life among older adults. Fall-prevention research has found that early prevention promotes a prolonged independence. However, it remains unknown which intervention is most beneficial for early prevention and how these interventions should be implemented for long-term effects. In addition, the present and future burden on social and healthcare services contributes to a gap in needs and requires an evidence-based fall prevention. Research suggests that strength, balance, and functional training are effective in reducing falls and fall-related injuries. Such training could greatly impacting independence. Fear of falling and strategies for managing falls are the suggested components to be included when evaluating fall-prevention programs. Thus, the preservation of physical functions is highly relevant for both independence and quality of life. It also contributes to psychological and social well-being, which are important factors for enabling individuals to stay at home for as long as possible. To meet future challenges associated with the expected increase in the older population, older adults should be viewed as a golden resource. With assistance from professionals and researchers, they can learn and gain the ability to institute fall-prevention programs in their own environments. These environments are primarily beyond the responsibilities of the healthcare sector. Therefore, programs comprising current knowledge about fall prevention should be developed, evaluated, and implemented with older adults by using a “train-the-trainer” approach, where a natural collaboration is established between civil society and/or volunteers, healthcare professionals, and researchers. For sustainable and effective fall-prevention programs, a co-design and early collaborative approach should be used in the natural environment, before social and healthcare services are required.

**Keywords:** aging, functional training, fall-prevention programs, independence, quality of life

## Introduction

Falls among older adults remain a global challenge despite decades of research and published knowledge in the field.<sup>1</sup> In 1948, Joseph Sheldon identified in the survey of Wolverhampton that one-third of the respondents experienced falls, with the incidence increasing with age.<sup>2</sup> The survey targeted older adults and was the first of its kind conducted after the war. A total of 583 older adults, including 186 men aged older than 65 years and 397 women aged older than 60 years, participated in the survey. The results of the survey are still relevant, and the survey numbers are commonly used in the context of falls among older adults. This research aims to identify which interventions are most beneficial for fall prevention, how these interventions should be undertaken, and what future research is suggested to further enhance fall-prevention strategies for older adults.

Falls may lead to many consequences such as moderate-to-severe injuries, and in one-third of these patients, they may lead to death. Additionally, falls may have consequences such as fear of falling, loss of independence, reduced quality of life, and increased risk of recurrent falls.<sup>3-5</sup> Many risk factors for falls have been identified over the years,<sup>1,4,6</sup> particularly decreased lower limb muscle strength, gait, and balance, all of which physical activity and exercise can counteract. Therefore, research suggests that specific fall-prevention exercises are effective interventions in fall prevention.<sup>7-9</sup> In addition, recent systematic reviews have shown that multifactorial, multidomain, and multicomponent

assessments and interventions are successful and recommended.<sup>10,11</sup> These recommendations led to concepts such as a person-centered approach and changes in the perception of and efforts to prevent falls. Thus, the concept of fall prevention has changed from a biomedical approach (consideration of aging as not just a biological phenomenon) to a biopsychosocial way of viewing health and aging.<sup>12</sup> Thus, the perception of fall prevention has broadened, and there have been discussions about falls in old age, highlighting a reciprocal relationship between individual, behavioral, and environmental aspects.

## Social and Health Care Services in Fall Prevention

In social and healthcare services, identification of falls by opportunistic case findings, as well as systematic and evidence-based assessment and treatment, should be prioritized.<sup>1</sup> Therefore, professionals in these contexts play an important role. However, studies investigating healthcare professionals' views on fall prevention show examples of barriers such as time, priorities, high costs, and lack of knowledge.<sup>13</sup> These barriers may mean that a majority of patients with fall risk and fall history do not receive fall-preventive care, especially not appropriately individualized and evidence-based fall-preventive care.<sup>13</sup> In addition, when fall prevention is provided there is a challenge with fidelity. A lack of fidelity often includes modified interventions, based on common barriers such as resource availability, rather than science.<sup>14</sup>

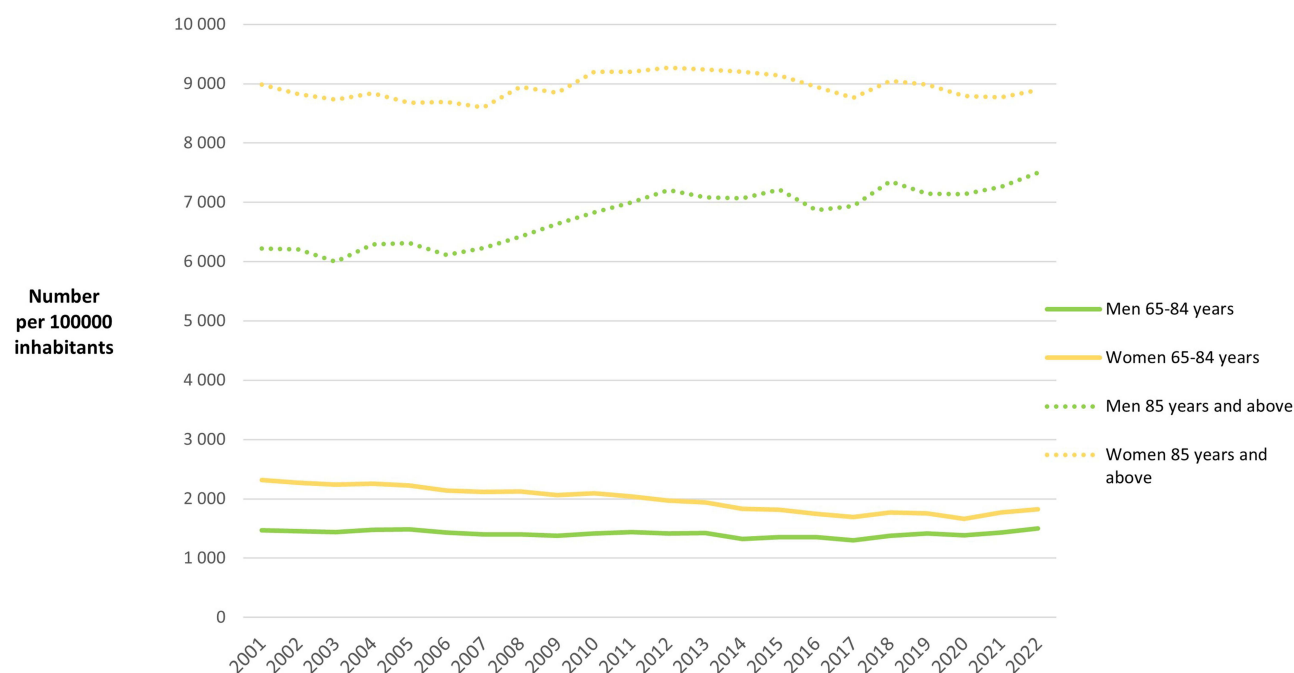
## Volunteers in Fall Prevention

One way to address challenges in fall prevention is by using volunteers and the train-The-trainer approach. In a recent study by Logan et al,<sup>15</sup> they included education for all staff in participating care homes in the intervention, a train-The-trainer approach. In this study, the results showed a reduction in falls by 43%. Based on the positive results from the study, the intervention is now being studied for implementation (FinCH study). For older adults, education models of train-The-trainers in fall prevention have been sparsely investigated. However, in New Zealand, ongoing research has shown that peer-led fall prevention classes may improve strength and balance and decrease fall incidence, in both long- and short-term perspectives.<sup>16,17</sup> However, appropriate models and implementation of volunteer peer-led classes in fall prevention needs to be further investigated. More recent research on the topic suggests that volunteer-led physical activity (PA) interventions can improve physical function and reduce fear of falling in community-dwelling older adults. Research also suggests volunteer peer-led classes are effective and inexpensive.<sup>18</sup> Further volunteer-led PA interventions online and in hospitalized older adults have proven to be feasible and acceptable. However, the evidence is still sparse and more high-quality randomized controlled trials (RCT) are needed to investigate the effects of volunteer-led PA interventions among older people.<sup>18–20</sup>

Considering future challenges in public health, the use of the train-The-trainer approach in fall prevention could be viewed as promising for both professionals and older adults. Thus, this calls for more high-quality research to further develop and evaluate a train-The-trainer approach, especially for older adults.

## Falls in the Nordic Countries

The Nordic countries including Sweden are a part of Western Europe, one of the world regions with the highest fall-related injury incidence and mortality rates in older adults.<sup>21</sup> Death rates attributable to falls in older adults from among the totality of deaths due to all causes among individuals aged 70 years and older have been reported: Finland, 2.5%; Norway, 2.8%; Sweden, 2.0%; Denmark, 1.8%; and Iceland, 1.7%.<sup>20</sup> According to Statistics Sweden and the National Board of Social Affairs and Health<sup>22,23</sup> in Sweden, falls leading to hospital admission among women slightly decreased in the last 20 years while those among men increased, with the most concerning numbers being reported among men aged 85 years and older (see Figure 1). Further, in Sweden, the population of adults aged 80 years and older is predicted to increase by approximately 50% by 2028. In addition, population estimates show that in 2070, the average life expectancy for women and men is predicted to increase to 89.8 and 87.7 years, respectively. This will present a future challenge in fall prevention with respect to the demographic aspect and life expectancy in Sweden. With respect to current challenges in fall prevention, the social and healthcare services need to be extended, reaching out to civil society for collaboration as primary prevention.



**Figure 1** Number of individuals 65 years and older hospitalized from fall-related injuries 2001–2022 in Sweden.

**Note:** The figure takes into account changes in the population of specific age and sex groups during the time period 2001–2022.

## The Nature of Falls

The nature of falls is complex; one way to understand the complex phenomenon is to use the Biopsychosocial model or Social Cognitive Theory (SCT), a learning theory.<sup>24</sup> In SCT, learning occurs within a social context, with emphasis on the dynamic interaction between the individual, behavior, and the environment. This dynamic interaction is called reciprocal determinism. SCT and reciprocal determinism are closely related to the dynamic interactions of risk factors for falls; therefore, SCT is a suggested theory to be utilized in fall prevention.<sup>6</sup>

## Individual Factors Affecting Falls

A natural physical decline occurs as individuals age, whereby there is a loss of muscle mass and strength,<sup>25</sup> and, in turn, decreased balance. Identifying sarcopenia<sup>26,27</sup> in this context and including it as well as osteoporosis in the multifactorial assessment is important owing to the increased risk of fractures, especially among women. Furthermore, low levels of physical activity and exercise, as well as sedentary behavior, influence these natural processes, leading to decreased mobility and increased risk for health conditions related to a higher risk of falls, such as diabetes, cardiovascular diseases, and dementia.<sup>28</sup> Thus, with aging, frailty, which is defined as increased vulnerability resulting from an aging-associated decline in reserve and function across multiple physiological systems, also leads to an increased risk of falls and recurrent falls.<sup>29</sup> In relation to frailty, there has shown to be a significant correlation between the risk of falling and the risk of malnutrition, emphasizing the importance of addressing nutritional needs in older adults.<sup>30</sup>

## Behavioral Factors Affecting Falls

With respect to individual factors, physical inactivity and sedentary behavior are important risk factors to address to counteract physical decline.<sup>31</sup> In addition, mobility and overall physical health status and medication intake or polypharmacy are common factors increasing the risk of hospitalization. Therefore, prescription compliance should be followed and revised on a regular basis to reduce the risk of fall-related hospital admissions.<sup>32</sup>

## Individual and Behavioral Factors

The close interaction between behavioral and individual risk factors that have been found to be highly associated with falls and recurrent falls is fear of falling and self-efficacy, both in those who have experienced a fall and those who have not.<sup>33</sup> Furthermore, the fear of falling has been shown to lead to activity restriction as well as poorer physical function and quality of life.<sup>34</sup> Self-efficacy, which is a measure of confidence in one's abilities to perform certain tasks in daily life, has been shown to mediate thoughts/emotions and actions and falls self-efficacy is closely related to balance confidence.<sup>35</sup> Falls self-efficacy has been shown to be positively affected by fall-prevention exercises and learning safe landing during fall-landing.<sup>36</sup> Prior to safe landing, learning to get down and up from the floor is also important. It has been suggested that getting down and up from the floor should be included in all fall-prevention programs because being unable to get up from the floor is a risk factor and predictor of serious fall-related injuries in older age.<sup>37</sup> Further, the social component in fall prevention has been suggested to be important, especially participation in social activities and group exercises, which have been shown to be effective and attractive for older adults in which to engage. Since almost every fall-prevention intervention includes a need for behavioral change, addressing this issue often takes more time and effort than the "practical" components that need to be addressed in fall prevention programs. Therefore, behavior should be addressed in fall prevention and not neglected; if neglected, the expected outcomes may not be achieved. In addition, achieving adherence to fall-prevention programs requires a long-term strategic plan, including behavioral change strategies.

## Environmental Factors Affecting Falls

The interaction between individual and behavioral aspects interacts with environmental aspects. Over the years, environmental modifications, including adjustments for and removal of hazards, have been a major focus in fall prevention.<sup>38</sup> In a recent study of real-life falls in older adults in care homes, one-third of all falls were due to external perturbation.<sup>39</sup> Therefore, environmental adjustments aiming to reduce the risk of falls are of great importance. These adjustments have been shown to be effective in reducing falls among older adults and adding to a broader approach to person-centered fall prevention. Furthermore, living conditions such as accommodation (for example, living alone or in a care home) and the need for help in daily life are known risk factors for falls.<sup>1,6</sup>

## Current Knowledge and Challenges

The Global Guidelines for Fall Prevention were released in 2022 with an aim to supporting practitioners in structuring their evidence-based fall-prevention work.<sup>1</sup> These guidelines aim to support practical assessments and interventions for fall prevention among different populations and in different settings. The guidelines highlight the importance of a person-centered approach by using an approach that involves multifactorial, multidomain, and multicomponent assessment and intervention. However, the report indicates some remaining challenges in achieving effective fall prevention in care facilities and hospitals. Individuals admitted to care facilities and hospitals are often frail and require extensive support in their daily lives. The guidelines also emphasize that older adults should be educated by healthcare professionals regarding fall prevention to raise awareness and that this should be a regular practice in primary health and social care.

In the current global guidelines as well as in previous systematic reviews,<sup>7,9</sup> the importance of physical activity, especially specific fall-prevention exercises, is highlighted as one of the most effective fall-prevention strategies. This strategy should be introduced as early as possible in an older person's life, with a focus on physical and functional decline. A major challenge presently encountered in fall-prevention work is the modification and shortcuts taken in practice by professionals when using evaluation programs, especially fall-prevention exercise programs. This may be one of the many explanations why falls continue to increase and pose a major health threat for older adults. Considering the future demographic challenge and known trends regarding falling and fall-related injuries among older adults, social and healthcare services will likely not have enough resources to address the challenges associated with an increased older population and the need for these services.

## Fall Prevention in the Future

First, a structured and evidence-based approach, including fidelity to such an approach, is of the utmost importance in addressing both health and social care. Second, a train-the-trainer approach, focusing on collaboration with civil society and volunteers, is suggested as the next step in fall prevention. This goal is important with regard to the broader community-dwelling older population and their ability to stay strong, steady, healthy, active, and independent for as long as possible. The community collaboration encourages a sustainable program with ongoing fall-prevention benefits. Using the train-the-trainer approach, older adults can be educated by professionals in fall prevention, especially in specific fall-prevention exercise programs, which can serve as a primary prevention strategy in the individuals' own environment.

Therefore, collaboration with civil society is suggested as an unused golden resource when striving for health promotion and early fall prevention among older adults. In the absence of such a collaboration, it will be nearly impossible to reduce the increasing number of falls.

Therefore, future research should focus on using co-design and collaboration with civil society (especially organizations for retired persons), practitioners, and researchers for the evaluation of effects and sustainability of the suggested train-the-trainer approach. Further, there is a need to apply structured fall prevention and to ensure fidelity for the effects and safety of the intervention. From a clinical point of view, the involvement of older adults, the golden resource, in fall prevention may lead to a future model for optimal primary prevention among older adults, promoting public health and reducing the need for health care and secondary prevention services and ensuring the optimal use of these resources. In addition to the fall prevention interventions explored in this commentary, promotion of an active lifestyle, good nutrition, and attention to psychosocial and cognitive health would enhance fall prevention safety in older adults.

## Abbreviations

FinCH study, Falls in Care Homes; PA, Physical Activity; RCT, Randomized controlled Trial; SCT, Social Cognitive Theory.

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