

ORIGINAL ARTICLE

## A case of community-based fall prevention: Survey of organization and content of minor home help services in Swedish municipalities

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### Abstract

**Background:** The aim of this study was to survey minor home help services provided by Swedish municipalities with the main purpose to prevent fall injuries. **Methods:** If minor home help services were presented on the homepage of a municipality, an initial telephone contact was taken. Thereafter a questionnaire was administered, including questions about target groups, aim with the services, tasks included, costs and restrictions for users, budget, and experienced gains with the services. Municipalities not providing minor home help services were asked about the reason therefore and if the municipality had previously provided the services. **Results:** The questionnaire response rate was 92%. In 191 of Sweden's 290 municipalities services were provided by, or in cooperation with, the municipality. Reasons for not providing the services were mainly financial and lack of demand. Services were more often provided in larger cities and in municipalities located in populous regions. In some municipalities services were performed by persons with functional disabilities or unemployed persons. **Conclusions:** Both providers and users expressed satisfaction with the services. Aspects expressed were that services lead to greater sense of safety and social gains. The effect of the services in terms of fall prevention is yet to be proved. With only a small fall-preventive effect services are probably cost-effective. Improved quality of life, sense of safety, and being able to offer meaningful work to otherwise unemployed persons are important aspects that might in themselves motivate the provision of minor home help services.

**Key Words:** Fall prevention, home help services, elderly, persons with disabilities, municipal services, organization, health policy

### Background

The development of minor home help services in Sweden (*in Swedish: Fixartjänst*) started as a response to the large prevalence of fall-related injuries among elderly people. Fall injuries cause individual suffering and high costs to the health care sector, to municipalities and to society at large [1–5]. In Sweden the annual incidence of falls leading to injuries serious enough to require in-hospital care is about 43,000 [6], of which 52.5% occur in people's own homes [7]. Each year, in Sweden, approximately 1400 deaths are caused by fall-related injuries [8]. Direct costs attributable to the first year following an injury have been estimated to over SEK 5 billion [6]. However, costs occur also after the first year as approximately 7% of

elderly persons that have been seriously injured from falls are in need of special living accommodations such as nursing homes.

These facts give an idea of the savings potential related to decreasing the number of fall accidents, both from a societal and a municipal perspective, at the same time as sparing individual suffering. Considering demographic changes, with increasing numbers of old people, this problem will remain a challenge in the future.

To what extent minor home help services are provided by the municipalities in Sweden is not previously surveyed. There is also a lack of deeper knowledge and understanding of these services, e.g., what tasks

are provided, the cost of using the services, organization of services, etc.

Minor home help services in Sweden are predominantly provided by the municipalities and utilization of services does not require an assessment of needs. There are a total of 290 municipalities in Sweden and among their main areas of responsibilities are schooling and care of the children and the elderly. Obligated by national law, municipalities offer support and care for senior citizens assessed to be in need of home health care, personal assistance, or help with chores such as cleaning and cooking. In addition, some municipalities also provide minor home help services/handyman service without any needs-assessment.

We have not been able to identify fully publicly provided services of this kind in other countries. In the other Nordic countries similar services are provided with some subsidization, either by private performers or by providers of ordinary home help services but subject to surcharge. In the UK there are similar services (handyman services) available but these are provided by private actors and not subsidized by a local government.

The minor home help services in Sweden include services targeting elderly, and in some municipalities also persons with disabilities. The tasks carried out are primarily aimed at preventing/reducing falls by assisting the users with activities that are normally associated with fall risks. Examples of such activities are changing light bulbs and other activities that require the use of ladders or climbing on chairs or such. Provision of services follows a simple structure. The user dials a telephone number, date and time are agreed upon, and the visit takes place.

## Aims

The aim of this study was to survey minor home help services provided by municipalities in Sweden with regard to diffusion, organization, content, and functioning. Also, socioeconomic consequences of providing these services are discussed.

## Materials and methods

### *Survey of minor home help services*

For the survey a questionnaire was developed. The questionnaire included questions about target groups, aim with the services, which tasks that are carried out, costs and restrictions for users, budget, and experienced gains with the services. Open questions were used as was questions with predefined alternative answers. The questionnaire was piloted in two municipalities. After slight adjustment it was

found to be valid for the research questions in the present study.

Homepages of all municipalities were scanned. Where minor home help services were presented on the homepage, an initial telephone contact was taken in order to present the project. Thereafter the questionnaire was sent. Municipalities in which no information was found on the homepages were contacted by telephone and a questionnaire was sent if the municipalities provided the services. In some cases, all data were collected telephonically. Municipalities not providing minor home help services to their citizens were asked a small number of questions, such as reason for not providing the services and if the municipality had previously provided the services.

### *Societal costs and consequences*

Estimation was made of the societal economic burden of fall injuries in general, and fall injuries in elderly people's homes specifically. Minor home help services are designed to prevent a subset of all indoor falls, the relative size of the subset being unknown. A hypothetical calculation example was used for a discussion on the costs and preventive potential of minor home help services.

The simplifying assumption was made that serious fall injuries equal fractures. Information on amounts and types of fractures among persons over the age of 65 years was collected from available registers and published literature. Information on costs associated with fractures was retrieved from published literature, mainly health economic studies of osteoporosis treatment.

## Results

### *Survey of minor home help services in Swedish municipalities*

The questionnaire response rate was 92% (266 out of 290 municipalities). However, all municipalities could be categorized with respect to whether minor home help services are provided with municipal involvement or not. The main purpose was the study of utilization of public resources, to illustrate whether services should be introduced in further municipalities. Therefore, results reported in this section concern municipalities that are involved in the provision of the minor home help services; i.e., private actors and volunteer organizations are not included in the main results.

*Diffusion and organization.* The survey showed that in 191 out of Sweden's 290 municipalities the services were provided by, or in cooperation with, the

municipality. Services were more often provided in larger cities and in municipalities located in populous regions. Provision of these services was lower in rural regions, also implicating that provision is more frequent in the south part of Sweden than in the more sparsely populated north part.

The organization of minor home help services provided by municipalities can be categorized according to Table I. Details on organization were received from 177 of the 191 municipalities providing the services.

Activities by which services are marketed vary between municipalities. Common strategies are municipality website, ads in local press, ad sheets, and information directed to senior citizen associations.

*Target groups and content.* The age limit for being entitled to make use of the services differs between municipalities. Above age 65 years is applied in 38%, 67 years in 24%, 70 years in 16%, and 75 years in 20% of municipalities. As the main focus of minor home help services is to reduce the risk of falls in the indoor home environment all, or almost all, services include chores such as changing light bulbs and high-placed fuses, changing curtains, mounting, and hanging up things at height so that the users do not climb on ladders, etc. In most municipalities services include chores such as carpet removing, lighter furniture rearranging and overhaul of accident risks in the home. Only a few municipalities include outdoor chores. In most municipalities errands are prioritized based on emergency, so that issues like broken bathroom lighting, fuse replacement, and change of batteries in smoke alarms are taken care of promptly.

*Terms, utilization, and functioning.* In a majority of the municipalities (58%) services are provided free of charge but the users have to pay for supplies. In 32% of the municipalities services are completely free of charge, and in some municipalities (9%) users are charged for the services. In most municipalities (78%) there are no restrictions in utilizing the services. In the remaining 22% of municipalities there are some restrictions, consisting of either the length of each visit or the number of visits per year.

Utilization of services ranges between a few to about 30 errands per week in different municipalities. Information on target groups reached is scarce but we could see a tendency that the great majority of users were elderly people, and only a small proportion were disabled people.

In the questionnaire, the municipal budget for the minor home help services was requested. The response rate for this question was low, but based on answers from 14 municipalities who have one full-time

Table I. Categorization of the organization of minor home help services in Swedish municipalities.

Organization structure of minor home help services	
Organization	Per cent
1. Services are conducted completely by the municipality	
1.a. Services are provided by the municipality, performed by one or more employed persons	54
1.b. Services are provided by the municipality, performed by persons with functional disabilities involved in municipal daily activity programs	11
1.c. Services are provided by the municipality, sorting under the labor unit and performed by persons in unemployment	28
2. Services are provided and performed by the community rescue service, in cooperation with the municipality	5
3. Services are provided and performed by companies with financial compensation from the municipality	3

employed 'fixer' the average budget was SEK 440,000 per year. The budget of course depends on municipality size, demand for the services, what is included in the budget, etc. The purpose and benefit of providing minor home help services as expressed by the municipalities include, besides prevention of fall injuries, a sense of safety for the elderly and thereby an opportunity to remain in their own homes for a longer time. Another aspect expressed is the value of being able to offer meaningful work to unemployed and disabled people.

#### *Why minor home help services are not provided by municipalities*

Municipalities not providing minor home help services (99 municipalities, 34%) can be divided into those that have never provided the services (40%), those who formerly provided the services (38%), and those where services are provided by volunteer organizations or private actors (23%). In municipalities where services are not provided, either because they have never been introduced or because they have been terminated, financial reasons are the most commonly stated. Services provided by volunteer organizations in some cases involve the municipalities; either by financial contributions or that the coordinator of the services is a municipal employee.

#### *Socioeconomic burden*

Fall injuries are assumed to consist of the most prevalent fractures: hip, vertebral, wrist, and shoulder fractures. Annual prevalence and costs of these four

Table II. Average direct costs during the first year following a fracture.

Fracture type	Cost per fracture (SEK)	Frequency	Share (%)	Total cost (MSEK)
Hip	143765	23,632	55	3397
Vertebral	145535	7345	17	1069
Wrist	20053	4151	10	83
Shoulder	65406	7928	18	519
Total		43,057	100	5068

fracture types concerning people over 65 years of age are summarized in Table II [6].

Direct costs have been estimated to consist of 60% health care and 40% municipal care [9]. Health care costs consist of inpatient care (80%), outpatient care (17%), and pharmaceuticals (3%). Costs for municipal care consist of special housing (43%) and other municipal services (57%) [9].

In addition there are costs after the first year following a fracture, mainly due to need for special housing (e.g., nursing homes) and particularly concerning hip fracture patients. The proportion of hip fracture patients living at home before the fracture and one year after the fracture residing in nursing homes is assumed to be 13%, based on published literature [10–12]. The cost of a patient living in a nursing home is approximately SEK 1700 per day [13], meaning that the cost of one year in a nursing home corresponds to a cost of SEK 620,000. Hip fracture patients living in nursing homes are assumed to remain there for the rest of their lives [14].

Costs attributed to informal care associated with hip fractures have been estimated to on average SEK 5900 per patient during the first year following a hip fracture [9].

Societal costs of fractures are summarized in Table III.

Costs presented here are restricted to include direct costs related to health care and municipal care. Indirect costs related to production loss are assumed to be negligible due to the age structure of the users.

Intangible costs such as the quality of life of users (due to less fractures, sense of safety, social aspects, etc.), and meaningful work for otherwise unemployed persons have not been possible to measure and include.

Costs presented are adjusted to 2012 prices.

#### *Costs of providing services and potential savings*

In order to discuss the societal consequences of providing minor home help services, a hypothetical example is used. We assume a hypothetical mid-size Swedish municipality with 50,000 inhabitants and a demographic structure corresponding to Sweden at large.

Table III. Summary of societal costs of fractures.

Cost item	Total costs (MSEK)	Cost per seriously injured (SEK) (n=43,000)
Inpatient care	2433	56,600
Outpatient care	517	12,000
Pharmaceuticals	91	2100
Special housing	872	20,300
Other municipal services	1156	26,900
Informal care	139	3200
Total	5208	121,100

The hypothetical municipality represents about 0.53% of the Swedish population (approximately 9.5 million inhabitants). The cost of fall-related injuries during the first year following fracture in the hypothetical municipality is assumed to be about 27 MSEK (0.53% of 5068 MSEK, see Table II). Indoor falls constitute 52.5% of all falls, which would correspond to costs of about 14 MSEK. Minor home help services can help prevent a subset of indoor falls.

The municipal budget is burdened by 5.6 MSEK (40% of total costs). Additional costs affecting the municipal budget is associated with eight or nine persons (13% of hip fracture patients) being in need of nursing home for the rest of their lives. The average age of a hip fracture patient in Sweden is 83 years [15] and about 70% of cases are women. The statistical life expectancy is 6.43 years for 83-year-old men and 7.81 years for 83-year-old women [16]. Hip fractures have been found to reduce life years by 0.9 years in women and 2.7 years in men [17]. This means that affected women live on average 6.91 years and men 3.73 years after a hip fracture, corresponding to approximately 6 years on average for the whole population. The nursing home cost would thus sum up to  $8 \times 6 \times 620,000 = \text{SEK } 29.8$  million. Together with the costs during the first year total societal costs sum up to SEK 43.9 million, of which SEK 35.4 million burden the municipal budget.

The actual impact of minor home help services on fall injuries is yet unknown. If services are assumed to result in a 10% reduction of domestic fall injuries this would mean savings amounting to SEK 4.4 million (SEK 3.5 million affecting the

municipal budget). A 5% reduction of fall injuries implies savings of SEK 2.2 million (SEK 1.8 million to the municipal budget), and a 1% decrease in fall injuries would lead to savings amounting to SEK 440,000 (SEK 350,000 to the municipal budget).

These potential savings should be compared to the costs for providing the services. For a municipality with 50,000 inhabitants the costs are probably not higher than the savings corresponding to a 1% reduction of fall injuries. Moreover, the positive side-effects of the services (sense of security, social gains, possibility to offer meaningful work) should be considered.

## Discussion

Minor home help services, initiatives aimed at preventing or decreasing the number of fall injuries (e.g., fractures) by offering elderly (and in some cases disabled) people help with simple chores in their homes, are provided by two-thirds of Swedish municipalities. Costs for provision of services depend on size and demographics of the municipality, organization of the provision, chores included, demand for services, etc. By organization of the provision is primarily meant *who* performs the chores; municipal employee(s) or persons included in labor unit actions or daily activities. In municipalities where performers of the chores are not municipal employees the cost for providing services is lower, and in addition there is a gain associated with offering unemployed or disabled persons meaningful work.

The services work best in densely populated municipalities, in which there are at least 20–30 errands a week. In small municipalities the number of errands becomes very small and the service might be regarded as insufficiently accessed. In these smaller municipalities a solution might be to include the provision of minor home help services as a part of an employment. Another solution might be to cooperate between municipalities, which is the case in a couple of places in Sweden. In the north part of Sweden this solution meets practical problems due to large distances.

The calculation example showed that in a hypothetical, and for Sweden representative, municipality of 50,000 inhabitants a 10% decrease of serious domestic fall injuries would result in societal savings of SEK 4.4 million, a 5% decrease would result in savings of SEK 2 million, and a 1% decrease in savings of SEK 440,000: of these savings SEK 3.5 million, 1.8 million, and 350,000 respectively directly affect the municipal budget. As a comparator we found that the average budget for providing the services was about SEK 440,000 in municipalities with employed performers. Critical factors for

the cost-effectiveness of the service are the size of the population and utilization of services. The latter depends on both population size and that information on the existence of the service reaches out to the elderly population.

## Methodological considerations

Utilization of services should be studied in more detail with respect to which target groups are reached. Assessment of the actual effects on fall prevention of minor home help services should also be undertaken. Such a study should include effects on fall prevention, economic savings, and the elderly peoples' quality of life. Some years of follow-up is needed to fully capture the effects of providing the services.

Our estimation of the societal economic burden of fall injuries includes some simplifications. Fall injuries have been considered to equal fractures, and furthermore only the four most common fractures. This simplification was made partly because fractures are the most common serious (i.e., demanding in-hospital care) consequences of falls and partly because data are more easily accessible when making this demarcation.

## Conclusion

Minor home help services are provided by, or in cooperation with, the municipality in 191 out of 290 Swedish municipalities. Both providers and users are in general satisfied with the operation of services, in the sense that they lead to greater sense of safety making it possible to remain longer in the own home, social gains and meaningful work for those performing the chores. Reasons for not providing the services in the remaining 99 municipalities are mainly financial and lack of demand. The actual effect of the services, in terms of fall prevention, is yet to be proved. Even with a small effect on fall prevention there is a good chance of the services being cost-effective. Apart from fall prevention aspects such as improved quality of life, sense of safety and being able to offer meaningful work to persons outside the ordinary labor market are important and might in themselves motivate the provision of minor home help services.

## Conflict of interest

None declared.

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