Functional Status Of Older Adults In Finland: A Review Of The Literature
M Salminen, S Vaapio, I Räihä, J Heinonen, S Kivelä

Citation

Abstract
The aim of this review of the literature was to describe the functional status of older adults (≥65 years) in Finland. Publications with data on functional status in peer-reviewed scientific journals in Finnish and English were searched in literature databases and reference lists, and altogether 18 publications were found. All studies, except for one, were self-report studies. The great proportion of older adults were able to move independently and manage basic and instrumental activities of daily living at least with difficulties. Psychosocial problems increased more among women than men with ageing; 33.9% of women and 40.2% of men had still plans for the future, and 61.4% of women and 77.4% of men were feeling themselves useful at the age of 85 years. Cognitive disability clearly increased more among women (from 11.0% to 64.2%) than men (from 10.5% to 45.8%) with ageing. The challenge of maintaining independent life for the aged requires that preventive approaches to functional status and health in general receive urgent priority especially concerning women and the oldest elders.

INTRODUCTION
People are living longer than previously. In 2010, the proportion of people aged 65 or older in Finland was 17.6%, whereas it was 15.0% in 2000 and 13.5% in 1990. The proportion of people aged 65 years or older is estimated to be 22.9% in 2020 and 26.9% in 2040 (Statistics Finland 2010).
As people get older they tend to suffer from functional decline. Health and functional status of the future aged is a major issue for planning the need and estimating the costs of social and health services. It is likely that increased allocations in health and social services will not keep pace with the growing number of aged people. It is important to develop services, which maintain abilities and independence of the aged.
Physical and cognitive disabilities and illnesses of the aged are the main contributors to the use of social and health services. The current functional and health status, trends in changes of functional abilities and health in the aged population during the last decades and the usage of services by these age groups may be used in predicting the future needs of services (Sulander 2005; Salminen et al. 2012).
Therefore, information is needed about up-to-date functional status of Finnish older adults. The aim of this systematic review was to describe the functional status, such as managing and the need for help in basic activities of daily living (BADL) and instrumental activities of daily living (IADL), general need for help, and psychosocial and cognitive status of older adults in Finland.

MATERIAL AND METHODS
Search methods for identification of studies and selection of relevant studies
Original scientific publications about functional status of the older adults in Finland were sought in three different ways: 1. The MEDLINE (1995–February, 2011) and MEDIC (1995–February, 2011) databases were searched using Mesh (Medical Subject Headings) terms for functional abilities and incidence or prevalence and population-based or cohort study. Additionally, Finland or Finn* was used as a keyword. The Mesh search terms for functional status were as follows: activities of daily living or physical fitness or cognition disorders or cognition or social isolation. All these terms of functional abilities were used in combination. The language was restricted to English and the age of participants was restricted to 65 years or older.
MEDIC is a Finnish health sciences database, which contains references to Finnish medical and health sciences literature: articles, books, dissertations and reports published in Finland and not included in international databases. Mesh headings are integrated into the MEDIC interface. MEDIC
was searched for the English Mesh terms for functional abilities used in MEDLINE and their equivalent terms in Finnish. Also a keyword “aged” and its Finnish equivalent were used. The search was restricted to dissertations and original articles.

2. Publications from the publication lists (2000–February 2011) of the National Institute of Health and Welfare (NIHW), the National Public Health Institute (NPHI), and Stakes were searched from the websites of NIHW, NPHI, and Stakes. NPHI and Stakes merged to form NIHW on 1 January 2009. Only original studies on functional abilities of older adults in Finland were included.

3. Reference lists of included articles and publications were used to complete the search. Original articles on functional abilities of older adults in Finland were selected.

Data extraction
Data extraction was done by one member of the research team (M.S.). The following data were extracted: study population, age, gender (if available), number of participants, and outcome measures of functional abilities.

RESULTS
Search results
A total of 184 citations were identified from MEDLINE (n=44) and MEDIC (n=140). The abstracts were read by one author (M.S.). According to the abstracts, 19 articles were potentially eligible for inclusion by using the following inclusion criteria: population-based study, cohort study, age of 65 years or older, Finland or Finnish. Based on this first selection process, the articles of potentially eligible studies were read by M.S. After a thorough selection process, 12 studies were accepted. In addition, 1 publication of the National Institute of Health and Welfare and 5 publications from the reference lists of accepted articles and publications were included. This review of the literature includes 18 publications on functional status of the aged in Finland.

All studies, except for one register study (Goebeler et al. 2003), were self-report studies in which data were collected by a questionnaire and/or a structured interview.

Managing in basic and instrumental activities of daily living
In this review, BADL consisted of functions that are essential for an individual’s direct self-care (e.g., being able to move about, wash and dress oneself) and IADL consisted of functions that are more concerned with self-reliant functioning in a given environment (e.g., shopping, preparing meals, and cleaning) (Kempen and Suurmeijer 1990).

According to one register study (Goebeler et al. 2003) and several self-report studies the majority of aged subjects were able to move indoors and outdoors with or without difficulties and with or without a walking aid (Laukkanen et al 1997, 2001; Pohjolainen et al. 1999; Pitkälä et al. 2001; Sulander et al. 2003; Laitalainen 2010a, 2010b) (Table 1). The proportion of subjects having difficulties and needing help in moving outdoors increased clearly with ageing (Laukkanen et al. 1997; Sulander et al. 2003; Laitalainen et al. 2010b); about 20% of elders needed help in moving outdoors at the age of 80 years (Laukkanen et al. 2001). Although almost half of the oldest elders (≥90 years) had difficulties in moving indoors, about a third of them were still able to do shopping (Jylhä and Hervonen 1999).

According to the study of Laukkanen et al. (2001), only 15% of elders living in institutions or home but receiving home help services were able to do shopping.

Ability to move indoors is crucial in order to be able to manage tasks, such as toileting, washing, cooking and to maintain at least some kind of independence needed in living at home. BADL tasks, such as dressing and undressing (Jylhä and Hervonen 1999); Sulander et al. 2003; Laitalainen et al. 2010a, 2010b), eating Sulander et al. 2003; Laitalainen et al. 2010b), having a wash (Sulander et al. 2003; Laitalainen et al. 2010a), toileting (Laitalainen et al. 2010a), and getting into and out of bed (Jylhä and Hervonen 1999; Pitkälä et al. 2000; Laitalainen et al. 2010a), and IADL tasks, such as cooking (Laitalainen et al. 2010a), doing light housework (Sulander et al. 2003; Laitalainen et al. 2010a, 2010b) and daily outdoor activities (Pitkälä et al. 2000; Jylhä et al. 2009), and managing in stairs (Jylhä and Hervonen 1999; Sulander et al. 2003; Laitalainen et al. 2010a) became slightly more difficult with ageing and the need for help increased although the majority of elders were still able to manage these tasks. No gender differences were found except in cooking which was in favour of women (Laitalainen et al. 2010a). Difficulties in managing stairs increased with ageing, especially among women (Jylhä and Hervonen 1999; Sulander et al. 2003; Laitalainen et al. 2010a); 70.6 % of men and 56.6% of women were able to manage stairs without difficulties at the age of 80-84 years (Laitalainen et al. 2010a). This underlines the importance of housing with no stairs or steps. Institutionalized aged people were included in four of these studies (Jylhä and Hervonen 1999; Sulander et al. 2003; Laitalainen et al. 2010a, 2010b), but at least in one of these studies, institutionalized aged
people were underrepresented (Sulander et al. 2003). Due to this, the results of this review may be slightly more positive than those in the total aged population. In addition, cooking and light housework are not ideal indicators for functional status as they might be affected by traditional gender roles (Sulander et al. 2003). The study of Laukkanen et al. (2001) showed that managing BADL and IADL tasks is clearly worse both among institutionalized aged people and among those receiving home nursing or home help services; e.g., only 63.9% of subjects aged 65 years or over could dress and undress without difficulties, 34.4% were able to wash oneself without difficulties, and about third were able to cook and do light housework without difficulties.

General need for help
General need for help reflects the difficulties in BADL and IADL tasks including need for weekly help, weekly home help, and daily help of others in general (not in an individualized BADL or IADL task).

The general need for help by relatives (Pitkälä et al. 2000) or others (Pitkälä et al. 2000; Jylhä et al. 2009) clearly increased with ageing, which is consistent with increased difficulties in managing everyday tasks (Table 2). More women (20.3%) than men (10.2%) used publicly funded domestic help at the age of 85 years (Pitkälä et al. 2001) while a bigger proportion of men than women needed daily help of others (Pitkälä et al. 2000), which may be caused by poorer IADL skills, such as cooking, in men.

Psychosocial status
The proportion of subjects meeting friends or relatives almost daily increased with ageing being 22.3% in men and 28.2% in women aged 80-84 years (Laitalainen et al. 2010a) (Table 3). On the other hand, meeting friends weekly slightly decreased with ageing (Pitkälä et al. 2000). About a third of the aged reported participating in social activities at least twice a month (Teinonen et al. 2007). According to Teinonen et al. (2007), elders are polarized to those who do participate in different social events and have social contacts and to those who do not participate and have less social contacts.

The proportion of aged with lowered mood increased with ageing (Arve et al. 1999; Pitkälä et al. 2003). However, the majority (at least 88%) of the aged still had a zest of life (Pitkälä et al. 2000), and about 40% of the 90-year-olds wanted to live to be 100 years old (Jylhä et al. 2009). Psychosocial problems increased more among women than men with ageing; the proportion of those having plans for the future and feeling themselves useful decreased and that of those with feelings of loneliness increased among women while no change were found in men (Pitkälä et al. 2000). In addition, loneliness was more common in older people living in rural areas than in those living in big or small towns (Savikko et al. 2005).

Cognitive status
Lowered cognitive status was common among the aged (Hänninen et al. 1996, 2002; Arve et al. 1999; Kattainen et al. 2004) (Table 4). Cognitive disability clearly increased more among women (from 11.0% to 64.2%) than men (from 10.5% to 45.8%) with ageing (Arve et al. 1999). The study of Arve et al. (1999) also clearly demonstrated a significant increase in the proportion of persons suffering from both depressive mood and impaired cognition with ageing. These two conditions are tightly connected with each other and create a major challenge for geriatric treatment and care. According to telephone interviews, the non-participants in the study of Hänninen et al. (2002) had lower cognitive status than the participants. This indicates that subjects with cognitive decline are not eager to participate in studies. Thus, the true prevalence of lowered cognitive status is probably even higher.

Table 1a
Managing in BADL and IADL tasks among older adults in Finland
**Table 1b**

<table>
<thead>
<tr>
<th>Study population</th>
<th>Age</th>
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<th>Education</th>
<th>Employment</th>
<th>Health status</th>
<th>Mobility</th>
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**Table 1c**

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**Table 1d**

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**Table 2**

General need for help among older adults in Finland

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<th>Need for Help</th>
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**Table 3a**

Psychosocial status among older adults in Finland

<table>
<thead>
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<th>Gender</th>
<th>Education</th>
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**Table 3b**

Cognitive status among older adults in Finland

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<th>Education</th>
<th>Employment</th>
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**DISCUSSION**

We made a review of the literature to obtain a
comprehensive overview of functional status among people aged 65 years or older in Finland. After the data extraction, 18 publications were included in this review.

All studies but one were self-report studies, whose data were collected by a questionnaire and/or structured interview. The self-reported assessment is found to be a good estimator of disability in older people because it reflects findings over at least a couple of days and may be based on reliance on various aids or equipment (Kivinen et al. 1998). Replying to a questionnaire or participating in an interview requires the subjects’ own input. Non-response reduces the effective sample size, can introduce bias, and affects the interpretation of results and the generalization to the background population (Freedman et al. 1996; Edwards et al. 2002, 2009; Drivsholm et al. 2006; Jylhä et al. 2009). Non-response analyses for general surveys among the aged have found lower functional status in non-respondents than in respondents (Launer et al. 1994; Hebert et al. 1996; Hoeymans et al. 1998).

Only in one study included in this review was the data derived from registers. The target population consisted of all people born in 1907–1908 and living in Tampere in January 1999, and of all people born in 1909–1910 and living in Tampere in January 2000. Tampere is a techno-industrial city with about 200,000 inhabitants in Southern Finland. Of its current population, 1.5% is 85 years old or older. Medical records of city hospitals and health centers were used as the source of data assuming that the study subjects had had a reason to visit a physician at some point in their lives. The missing 9.3%, 84 people altogether, fell into two categories: 1) 44 people did not have health records; and 2) 40 people had records which were not available at the time of the study. The 44 people with no records may have used private physicians, but any severe recent disease is not probable, because the private sector offers only outpatient services. The fact that subjects had no hospital stays within the past 28 years gave a reason to conclude that these people were among the healthiest in their cohort. Nevertheless, information through mailed questionnaires showed that most of them had at least one chronic condition, such as dementia or heart disease (Goebeler et al. 2003).

The representativeness of the materials of these studies to aged Finnish population must be interpreted with caution because of the great variety of study samples. Firstly, the range of sample sizes of 18 studies varied between 403 and 5845. In three studies, sample size was less than 500 while in 10 studies, there were at least 1 000 participants. Sample sizes of the rest five studies were between 500 and 1000. Secondly, of the 17 self-report studies, 11 were population-based including both home-dwelling and institutionalized aged people and in six studies only home- or community-dwelling aged persons were included. Thirdly, three studies were nationwide and in one study, participants were derived from six municipalities representing various parts of Finland, and both rural areas and small and large cities. In two studies, subjects were from two different geographical areas: from Eastern and Western Finland or from the capital region and largely rural North Karelia or from Southern and Western Finland. In one study, all participants lived in the Central Finland healthcare district. Twelve of the self-report studies were conducted among aged subjects living in the area of one city or municipality; four in Southern, one in Western, three in Central, and two in Eastern Finland.

Differences in functional status according to geographical location could not be detected by this review. However, it is shown that there is some geographical variation in functional capacity (Sulander et al. 2005) but its direction is different for different indicators (Martelin et al. 2002). For instance, there are differences in morbidity and mortality between subjects living in Eastern Finland and those in the western part, especially in the prevalence of cardiovascular diseases (CVD). Even though coronary heart disease mortality has decreased by 75% over the past 25 years among the working-age population, mortality rates continue to be higher in eastern parts of the country compared to western areas (Pajunen et al. 2004). The study of Kattainen et al. (2004) showed that CVDs are the leading determinants of disability among Finnish persons aged 65–74 years, and, thus, it is possible that functional abilities in aged subjects living in Eastern Finland are worse than those in the aged living in Western Finland at least among CVD patients. Neither the differences in functional status by socioeconomic status could be detected by this systematic review although they have shown to be greater than those by geographical location. Finnish older adults with disadvantaged socioeconomic status have shown have lower physical (Rautio et al. 2001, 2005) and mental capacity (Rautio et al. 2001). Neither this could be detected by this systematic review.

Similar measurements of BADL were applied in every study, but the results were described in different terms. Jette (1994), for instance, observed that when disability was described in terms of experienced difficulties, the assessments of disability in different BADL items were
1.2–5 times better than when need for help was inquired. The measurements based on need for help are feasible measures about the ability of the population to cope independently. A self-report of difficulties in performing functional activities is useful in identifying older persons with a physical disability in a way that is overlooked in self-reports of the need for help (Langlois et al. 1996; Kivinen et al. 1998). Successful prevention and postponement of functional disabilities depend not only on the early diagnosis of illnesses; it is also important to identify even minor symptoms and signs (such as fatigue or difficulties in performing BADLs), to take them into account and to focus health care interventions on groups which benefit from those (Laukkanen et al. 1997).

The oldest elders are the fastest-growing age group in Finland. The oldest elders constitute a very heterogeneous group that mainly lived in the community with the support of their families and public services (Goebeler 2009; Jylhä et al. 2009). A great proportion of home-dwelling people aged 90 or over had rather good functional status. Only one in five of these home-dwelling aged was a man. According to longitudinal studies, functional abilities among the Finnish aged have improved during the latest decades among 65–69-year-olds, especially in men (Sulander 2005; Laitalainen et al. 2010b). The functional abilities of the oldest elders have not improved since 1990 (Jylhä and Hervonen 1999). The positive development in functional abilities among the young elders may be partly explained by the improving overall health status of the overall population. Advances in technical aids and improvement in living conditions may be partly responsible (Sulander 2005).

CONCLUSIONS

According to this review of literature, a great proportion of older men and women were able to move independently at least with difficulties or with a walking aid and manage basic and instrumental activities of daily living. Psychosocial problems and cognitive disability clearly increased more among women than men with ageing. Because women live longer and have more disabilities than men, it is stated that there are more expected disabled years among women than among men. The unprecedented expansion of the number of the aged and the challenge of maintaining access to health and social services require that preventive approaches to functional status and health receive more priority than before, especially among women and among the oldest elders.

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DECLARATION OF CONFLICTING INTEREST

None Declared

References


Jylhä M, Hervonen A (1999) Functional status and need of help among people aged 90 or over: a mailed survey with a


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