One-time counselling decreases the use of benzodiazepines and related drugs among community-dwelling older persons

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Abstract

Background: evidence about possibilities to help older persons to withdraw the long-term use of benzodiazepines (BZD) is scarce. Effective and practicable methods are needed.

Objective: the study aimed to assess the persistence of one-time counselling by a geriatrician to reduce psychotropic drugs, especially BZD and related drugs (RD).

Design: a prospective randomised controlled trial with a 12-month follow-up was conducted.

Subjects: five hundred ninety-one community-dwelling people aged 65 or older participated in the study.

Methods: instructions to withdraw, reduce or change psychotropic drugs were given to the intervention group. A 1-h lecture about these drugs and their adverse effects was given later on. No changes in the drug therapy were suggested for the controls.

Results: the number of regular users of BZD and RD decreased by 35% (12/34) (odds ratios (OR) = 0.61, 95% confidence interval (95% CI) 0.44–0.86) in the intervention group while it increased by 4% (2/46) (OR = 1.05, 95% CI 0.81–1.36) in the controls (P = 0.012). No significant changes in the users of other types of psychotropics were found.

Conclusion: one-time counselling of psychotropics and other fall-risk-increasing drugs by a geriatrician followed with a 1-h lecture about adverse effects of these drugs had positive effects in decreasing the number of regular users of BZD and RD, and these effects persisted for the total 12-month intervention period.

Keywords: older people, home-dwellers, reduction of benzodiazepines, randomised controlled trial, elderly

Introduction

The use of psychotropic drugs is common among older people. A high rate of consumption of these drugs is confirmed in most western countries [1–3]. A population-based study in Finland found that 37% of home-dwelling people aged 75 years or older used at least one psychotropic drug and 12% used two or more psychotropics concomitantly [4]. Every third used sleeping pills or anxiolytics which mainly consist of benzodiazepines (BZD) or related drugs (RD) [4]. Using BZD/RD is often long-term [5] and regular [6].

Age-related pharmacokinetic and pharmacodynamic changes and altered postreceptor cerebral response cause older people vulnerable to adverse effects of psychotropic drugs such as hypotension, orthostatic hypotension, memory loss, drowsiness, cognitive and psychomotor impairment [7, 8]. All psychotropics increase the risk of falls and fractures, BZD being a major independent risk factor [9]. Long-term use may also lead to increased tolerance, dependency, poor sleep or treatment-emergent depression [10, 11]. In older persons, the benefits for sleep are marginal, and the risk of adverse events is high [3, 12]. Guidelines on the prescription of BZD recommend that their use should be limited to the short-term relief of severe anxiety or primary insomnia [13, 14].

Discontinuation of the long-term usage of BZD/RD has been done by advising participants to quit these drugs on their own (minimal intervention), by single tapering off pro-
programmes, by augmentation with cognitive-behavioural therapy or with support of different medications [15–18]. In a recent meta-analysis, evidence was found for the efficacy of minimal interventions followed by a systematic discontinuation [19].

However, there is a clear need for simple and efficient methods for withdrawal of the long-term use of BZD/RD.

The aim of this study was to assess whether one-time counselling is successful in reducing the long-term use of BZD/RD, other psychotropics and other fall-risk-increasing drugs (FRID) and to describe the persistence of the reduction after 12 months.

Methods
Participants and intervention
A total of 591 volunteers living in the town of Pori, Finland were recruited between February 2003 and the end of January 2005 to a randomised, controlled multifactorial trial to prevent falls. Written announcements in newspapers, local pharmacies and health centres and by verbal announcements of general practitioners, home nurses and home helps and workers at clubs for older persons were used in the recruitment. Inclusion criteria were age 65 years or over, ability to walk independently at least 10 m with or without walking aids, normal cognitive functioning or only mild dementia (Mini-Mental State Examination test (MMSE) sum score ≥17) [20], living at home or in sheltered housing and one or more falls in the previous 12 months. The study protocol was approved by the ethics committee of Satakunta Hospital District. All participants gave a written informed consent before enrolment into the study.

A review of the medication list and one-time counselling to reduce drugs increasing the risk of falling belonged to the multifactorial fall prevention programme. In this article, we report the results of the reduction of these drugs by one-time counselling.

Eligible subjects were randomised to an intensive preventive programme (intervention group) or to a control group in two age-matched (65–74 years; 75 years or over) blocks after the baseline assessments. Randomisation involved sealed envelopes, and it was supervised by the geriatrician. At baseline and after the 12-month intervention, the geriatrician collected the data about drugs by interviewing the participants and from the medical records in the Pori Health Centre. All participants were asked to take the premedication list and one-time counselling.

Data was analysed on an intention-to-treat basis, using data for all randomised participants until they died, withdrew from the study or completed the study period [24].

The differences in categorical background variables between the intervention and the control groups were analysed using chi-square test or Fisher's exact test. Kolmogorov–Smirnov test was used to test the normality of distributions. Student t-test or Mann–Whitney U-test was used to test the differences in continuous background variables between the groups.

Changes within the intervention and the control groups and the differences in changes between them during the follow-up were analysed using logistic regression with generalised estimation equations in order to account for the correlation between repeated measurements. The results were quantified by calculating odds ratios (OR) with their 95% confidence intervals (95% CI). Primary analyses were performed among all participants and secondary analyses by gender and age (65–74 and ≥75 years). All statistical ana-
Table 1. Baseline demographic and clinical characteristics of the participants (n = 528)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Intervention group (n = 259) n (%)</th>
<th>Control group (n = 269) n (%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>36 (14)</td>
<td>49 (18)</td>
<td>0.194</td>
</tr>
<tr>
<td>Female</td>
<td>223 (86)</td>
<td>220 (82)</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unmarried</td>
<td>17 (6)</td>
<td>17 (6)</td>
<td>0.230</td>
</tr>
<tr>
<td>Married or common-law marriage</td>
<td>111 (43)</td>
<td>135 (50)</td>
<td></td>
</tr>
<tr>
<td>Widowed, divorced or juridical separation</td>
<td>131 (51)</td>
<td>117 (44)</td>
<td></td>
</tr>
<tr>
<td>Living place</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>250 (97)</td>
<td>254 (94)</td>
<td>0.437</td>
</tr>
<tr>
<td>Sheltered home</td>
<td>9 (3)</td>
<td>15 (6)</td>
<td>0.140</td>
</tr>
<tr>
<td>Living circumstances</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living alone</td>
<td>143 (55)</td>
<td>131 (49)</td>
<td></td>
</tr>
<tr>
<td>Living with spouse or other person(s)</td>
<td>116 (45)</td>
<td>138 (51)</td>
<td></td>
</tr>
<tr>
<td>Mean (SD) age (years) (range)</td>
<td>72.8 (5.6) (65–92)</td>
<td>72.9 (5.9) (65–91)</td>
<td>0.987</td>
</tr>
<tr>
<td>Mean (SD) number of prescribed drugs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regularly (range)</td>
<td>3.7 (2.6) (0–16)</td>
<td>1.5 (1.6) (0–16)</td>
<td>0.198</td>
</tr>
<tr>
<td>Irregularly (range)</td>
<td>1.6 (1.7) (0–9)</td>
<td>3.6 (2.2) (0–8)</td>
<td>0.548</td>
</tr>
<tr>
<td>Mean (SD) number of diseases</td>
<td>3.6 (2.0)</td>
<td>2.5 (2.7)</td>
<td>0.501</td>
</tr>
<tr>
<td>Mean (SD) BBS</td>
<td>51.3 (6.4)</td>
<td>50.9 (5.6)</td>
<td>0.145</td>
</tr>
<tr>
<td>Mean (SD) GDS</td>
<td>5.3 (5.0)</td>
<td>5.3 (5.3)</td>
<td>0.619</td>
</tr>
<tr>
<td>Mean (SD) MMSE</td>
<td>27.5 (2.1)</td>
<td>27.3 (2.3)</td>
<td>0.135</td>
</tr>
</tbody>
</table>

BBS, Berg Balance Scale (range 0–100); GDS, Geriatric Depression Scale (range 0–30); MMSE, Mini-Mental State Examination (range 0–30); SD, Standard deviation.

Results

Participants

Five hundred ninety-one eligible persons participated in the study (please see Appendix 2 in the supplementary data available in Age and Ageing online). The statistical analyses are based on the data for 528 subjects whose medications were available at baseline and during the 12-month follow-up. Table 1 shows the baseline characteristics. In the intervention group, 169 (65%) persons were 65–74 years of age and 90 (35%) persons were ≥75 years, and the corresponding figures in the control group were 178 (66%) and 91 (34%). There were no differences between intervention and control groups in any baseline characteristics in the total population or by gender or age. Even the concomitant use of psychotropics was quite common in both groups.

Changes were performed using SAS System for Windows, version 9.1 (SAS Institute Inc., Cary, NC, USA). P-values < 0.05 were considered statistically significant.

Use of psychotropics

Table 2 shows the regular and irregular use of all kinds of psychotropics at baseline. BZD/RD was the most common group of psychotropics in both the intervention and the control groups. Tsipicolon was the most common of regular (14/34, 41% in the intervention group and 25/46, 54% in the control group) and of irregular BZD/RD (33/78, 42% in the intervention group and 28/75, 37% in the control group). Antidepressives and antipsychotics were used by relatively few participants. No baseline differences were found in the use of any regular or irregular psychotropic between the intervention and control groups in the total population or by gender or age. Even the concomitant use of psychotropics was quite common in both groups.

The number of regular users of BZD/RD decreased significantly by 35% (n = 12) in the intervention group and increased by 4% (n = 2) in the controls; the differences in changes being significant in the total population (P = 0.012), in the younger group (P = 0.024) and in women (P = 0.016).

The number of irregular users of BZD/RD decreased significantly by 28% (n = 22) in the intervention group and by 30% (n = 23) in the control group. The differences in the changes were not significant in the total population or by sex and age. The decrease in the intervention group was significant in the younger group (0.66, 0.45–0.95) (P = 0.027), in the older group (0.61, 0.37–0.99) (P = 0.047) and in women (0.63, 0.46–0.86) (P = 0.004). In controls, respectively, the decrease was significant in women (0.63, 0.45–0.88) (P = 0.007) and in the younger group (0.58, 0.38–0.87) (P = 0.009).

The users of two or more psychotropics decreased significantly by 50% (0.31, 0.32–0.66) (P < 0.0001) in the
Table 2. Number of users of the fall-risk-increasing drugs at baseline and after 12 months in the intervention and control groups and significances of changes within the groups during follow-up

<table>
<thead>
<tr>
<th>Medication in use</th>
<th>Intervention group (n = 259)</th>
<th>Control group (n = 269)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline n (%) (95% CI) After 12 months n (%) OR P-value</td>
<td>Baseline n (%) (95% CI) After 12 months n (%) OR P-value</td>
<td>P-value</td>
</tr>
<tr>
<td></td>
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<tr>
<td><strong>Psychotropic drugs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regularly</td>
<td>50 (19)              39 (15)             0.74 (0.58–0.94) 0.016</td>
<td>62 (23)              64 (24)             1.04 0.84–1.29 0.705</td>
<td>0.039</td>
</tr>
<tr>
<td>Irregularly</td>
<td>84 (32)              59 (23)             0.61 (0.46–0.82) 0.001</td>
<td>81 (30)              56 (21)             0.61 0.45–0.83 0.002</td>
<td>0.974</td>
</tr>
<tr>
<td><strong>Antidepressives</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regularly</td>
<td>24 (9)               25 (10)             1.05 (0.76–1.44) 0.782</td>
<td>29 (11)              29 (11)             1.00 0.70–1.43 1.000</td>
<td>0.853</td>
</tr>
<tr>
<td>Irregularly</td>
<td>3 (1)                1 (1)               0.33 (0.07–1.65) 0.177</td>
<td>6 (2)                3 (1)               0.49 0.12–2.02 0.326</td>
<td>0.704</td>
</tr>
<tr>
<td><strong>Benzodiazepines and related drugs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regularly</td>
<td>34 (13)              22 (8)              0.61 (0.44–0.86) 0.004</td>
<td>46 (17)              48 (18)             1.05 0.8–1.36 0.695</td>
<td>0.012</td>
</tr>
<tr>
<td>Irregularly</td>
<td>78 (30)              56 (22)              0.64 (0.48–0.86) 0.003</td>
<td>76 (28)              53 (20)             0.62 0.46–0.85 0.003</td>
<td>0.902</td>
</tr>
<tr>
<td><strong>Antipsychotics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regularly</td>
<td>3 (1)                4 (2)               0.31 (0.32–0.66) &lt; 0.0001</td>
<td>5 (2)                6 (2)               0.46 0.59–1.23 0.384</td>
<td>0.020</td>
</tr>
<tr>
<td>Irregularly</td>
<td>4 (2)                4 (2)               0.31 (0.32–0.66) &lt; 0.0001</td>
<td>0 (0)                0 (0)               0.46 0.59–1.23 0.384</td>
<td>0.020</td>
</tr>
<tr>
<td><strong>Two or more psychotropic drugs regularly or irregularly in use</strong></td>
<td>40 (15)              20 (8)              0.31 (0.32–0.66) &lt; 0.0001</td>
<td>38 (14)              33 (12)             0.46 0.59–1.23 0.384</td>
<td>0.020</td>
</tr>
<tr>
<td><strong>Opiates</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regularly</td>
<td>7 (3)                7 (3)               1.00 (0.40–2.48) 0.100</td>
<td>5 (2)                6 (6)               1.20 0.46–3.17 0.706</td>
<td>0.783</td>
</tr>
<tr>
<td>Irregularly</td>
<td>24 (9)               20 (8)              0.82 (0.46–1.45) 0.493</td>
<td>18 (7)               8 (1)               0.43 0.23–0.81 0.009</td>
<td>0.128</td>
</tr>
<tr>
<td><strong>Strongly anticholinergics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regularly</td>
<td>13 (5)               15 (6)              1.16 (0.73–1.86) 0.527</td>
<td>15 (6)               17 (6)              1.14 0.70–1.86 0.93</td>
<td>0.958</td>
</tr>
<tr>
<td>Irregularly</td>
<td>18 (7)               11 (4)              0.59 (0.29–1.20) 0.147</td>
<td>10 (4)               4 (1)               0.39 0.13–1.17 0.093</td>
<td>0.518</td>
</tr>
</tbody>
</table>

OR, odds ratio; CI, confidence interval.

\(^a\)P-value for change within the group.

\(^b\)P-value for differences in changes between the intervention and control groups.

\(^c\)P-value between 2 or more and 0–1 users of psychotropic drugs within the group.
intervention group and by 13% (0.46, 0.59–1.23) \( (P = 0.384) \) in the controls. The difference in changes between the groups was significant \( (P = 0.020) \).

**Use of other FRID**

Opiates and strongly anticholinergic drugs were used by relatively few participants. The younger participants in the intervention group used significantly more irregular opioids (18/169, 11%) than the younger participants in the controls (8/178, 4%) \( (P = 0.034) \). No other baseline differences were found in the regular or irregular use of these drugs between the intervention and control groups in the total population or by gender.

**Discussion**

The results demonstrate that one-time counselling of the long-term use of BZD/RD, other psychotropics and other FRID followed by one later lecture was successful in reducing the numbers of regular users of BZD/RD, especially in the younger group and in women. The numbers of regular users of these drugs tended to increase in the control group. The numbers of irregular users of BZD/RD decreased significantly in both the intervention and the control groups.

Previous results showed that even a letter from the primary care practitioner can result in cessation or reduction of BZD/RD use [26]. We proved that one-time counselling with information of adverse effects decreases the regular use by 35%.

Only 24% of regular BZD/RD users and 18% of irregular users agreed to withdraw totally the use at baseline. Previous trials have shown that the participation rate to programmes targeted to discontinue BZD/RD is low. In a population collected from general practises, it was 17.4% [15]. The mean age of subjects was \( \sim 10 \) years younger than in our trial. In another study, 49% of eligible chronic insomnia patients refused to participate to a discontinuation programme [16]. These figures reflect difficulties to get subjects motivated to reduce the use of BZD/RD.

After a gradual reduction of the long-term use of BZD, rates of successful withdrawal, maintained at 12 months, have ranged from 26 to 64% according to previous studies. Many of these interventions have involved several visits to physicians [16]. In our study, 35% of the participants, a bigger share than at baseline, were willing to withdraw them, were free of regular use of BZD/RD after 12 months’ intervention by a one-time counselling and a lecture about adverse effects of these high-risk drugs. The use of other psychotropics did not alter during the follow-up. One reason is that the use of BZD/RD is often symptomatic unlike the use of other psychotropics. The majority of participants in the intervention group used BZD/RD for insomnia. The number of users of BZD/RD was also bigger than that of antidepressives or antipsychotics, which affected the results.

Intensive information about the adverse effects of BZD/RD and information about the changes in sleep with age delivered by the geriatrician may have helped the participants to discontinue the use of these drugs. The exercise and social groups which belonged to the fall prevention programme may have given assistance to the intervention group to reduce the use of BZD/RD.

The number of irregular users of BZD/RD decreased by 28% in the intervention group, but a significant decrease was found also in the controls. Since all the participants lived in the same town, the contacts between the participants in the intervention and the control groups may have affected

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**Table 3. Changes made in the drug therapy for the intervention group \( (n = 259) \) by age (65–74 and \( \geq 75 \) years). Values are numbers of changes made for different kind of drugs.**

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Antidepressives</th>
<th>Antipsychotics</th>
<th>Benzodiazepines and related drugs</th>
<th>Opiates</th>
<th>Strongly anticholinergic drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>65–74 years</td>
<td>( \geq 75 )</td>
<td>65–74 years</td>
<td>( \geq 75 )</td>
<td></td>
</tr>
<tr>
<td>Finish</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular drugs</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Irregular drugs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Reduce</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular drugs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Irregular drugs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Take only at need</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular drugs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Change to another drug</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Regular drugs</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Irregular drugs</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Start a new drug or increase dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Regular drugs</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Irregular drugs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Number of recommendations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular drugs</td>
<td>3</td>
<td>6</td>
<td>0</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>Irregular drugs</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>12</td>
</tr>
</tbody>
</table>

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the results. Information about the adverse effects of the long-term use of BZD/RD was written in newspapers during the intervention period. The participants in the control group were allowed to return their follow-up diaries personally to the research nurse and to meet persons in the intervention group during the visit. Some participants in the intervention and the control groups were friends and had contacts with each other. Hence these results may be partly explained by contagion. Previous results show that roughly from 6 to 21% of the long-term users of BZD/RD can spontaneously stop taking these drugs without any intervention [15,25].

Our study has limitations. The assessment by the geriatrician was focused on many risk factors for falls, and the counselling to reduce BZD/RD and other FRID was a part of a multifactorial fall prevention. The intervention, however, included a 1-h lecture for the participants in groups including information of connections of drugs and falls allowing questions and conversation. Also, exercise and psychosocial group activities were arranged. The participants were given proposals to reduce or stop the high-risk medications, and they were referred to primary care physicians only if they had problems in reducing the medications. Primary care physicians were informed about the changes by written information in medical records. This fact may have affected the willingness of primary care physicians to adhere to the programme organised by the geriatrician belonging to the personnel of the central hospital and not to the primary care personnel.

In summary, a one-time counselling followed by a lecture about proposals to reduce the long-term use of BZD/RD, other psychotropics and other FRID was effective in reducing the numbers of regular users of BZD/RD and the number of persons using concomitantly two or more psychotropics. The number of irregular users of these drugs was decreased significantly in both groups, which finding may be explained by contagion. We recommend follow-up contacts in groups with the nurse or physician after the individual counselling in order to motivate older people to implement the changes made by their own physician and to instruct and support them in non-pharmacological self-treatments of insomnia and anxiety. These follow-up contacts may improve the withdrawal of BZD/RD.

**Key points**

- Use of psychotropic drugs is common among older community-dwellers.
- A one-time counselling involving careful guidance and information by the geriatrician and proposals with written instructions reduced the numbers of regular long-term users of BZD/RD during a 12-month follow-up.
- Reduction of the long-term use of BZD/RD can successfully be implemented in primary health care by a one-time counselling.

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**Conflicts of interest**

There are no conflicts of interest.

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**Trial registration**

The study was registered in Clinical Trials.gov with the number ID: NCT00247546.

**Supplementary data**

Supplementary data mentioned in the text is available to subscribers in *Age and Ageing* online.

**References**

Can the higher risk of disability onset among older people who live alone be alleviated by strong social relations? A longitudinal study of non-disabled men and women

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Abstract

Purpose: to investigate if the increased risk of disability onset among older people who live alone could possibly be moderated by either high social participation or by being satisfied with the social relations.

Design and methods: logistic regression models were tested using two waves in a study population of 2,697 non-disabled older men and women from The Danish Longitudinal Study on Preventive Home Visits.