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# **Home Modifications for Preventing Falls by Older Adults Living in the Community An Evaluation Study**

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This study was funded with the assistance of the National Insurance Institute  
and the Ministry of Health

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Jerusalem | March 2024

# Abstract

## Background

Falls in their own home are the most common type of accident experienced by older adults. In some cases, falls can cause injuries and even deaths. About a quarter of older adults aged 65 and above, and half of those aged 80 and above, fall at least once a year. About one-fifth of those aged 65+ fall at least once a month. Falls have negative effects on the health and quality of life of older adults, and entail high costs. However, the effectiveness of new techniques have motivated several countries to develop plans for preventing falls, as well as national policies for adapting older adults' homes to prevent falls.

In Israel, an intervention program was developed to prevent falls among older adults living in their homes in the community, and it has been implemented since 2021. Two cities and one regional council installed safety kits to prevent falls: Jerusalem (by the municipality), Beersheba (by Yad Sarah), and Upper Galilee (by the Vatikey Hagalil NGO). The Funds Division of the National Insurance Institute (hereafter, NII) and the Geriatrics Division of the Ministry of Health commissioned the Brookdale-JDC-Myers Institute to evaluate the program.

## The Study

### Objective

Evaluate the contribution of the kits to preventing falls and to increasing older adults' sense of safety as they move around in their homes.

### Participants

In Jerusalem and the Upper Galilee – older adults aged 70 and above whose homes had been fitted with a fall prevention kit between the months of January and July 2023; in Beersheba – older adults aged 60 and above eligible for NII Level 1 allowance (the lowest of six) and older adults not entitled to benefits awarded by the Nursing Care Law but identified as being at risk for falls based on the National Insurance Institute's self-care dependency scale, whose homes had been fitted with a kit between the months of January and July 2023. A total of 3,893 older adults participated in the program.

### Method

772 closed-ended telephone interviews with the participants in whose home a kit was installed between January and July 2023 were conducted from April to October 2023 (three months after installing the kit), and six semi-

structured interviews with program officials were conducted in April-September 2023. In addition. Two home visits were made in which the research team observed the installations; during these home visits, two older adults were interviewed face to face.

## Findings

**Background characteristics:** Most participants were women. The mean age was 77. Most participants were married, independent and mobile, and healthy according to their own assessment. In Beersheba, the level of functioning and health condition were lower than in the other settings. Most participants were socially active and did not feel lonely.

**Items installed and their usage:** The kit items installed most frequently were emergency lighting, smoke detectors, anti-slip strips and grip handles in the shower, toilet, or bathroom. The most frequently used items were anti-slip strips and grip handles.

**Explanations by the installer:** Most (81%) of the participants stated that they had received full explanations by the installer; a small minority (12%) stated that they had not; and 7% stated that they had received a partial explanation. Nearly all (93%) were highly satisfied with the installation process in general.

**Improved confidence in mobility and satisfaction with the kit:** The participants reported that the grip handles and emergency lighting had contributed significantly to their confidence. Three-quarters (75%) stated that the kit had considerably improved their confidence in moving around the house, and 84% expressed a high level of satisfaction with the kit. It was found that the installation process also had a positive effect, by increasing the participants' awareness of the risks of falling, and steps that should be taken to prevent them.

**Falls:** After installation of the kit, the frequency of falls dropped to 8% of participants in the third month after the installation, compared to 10% beforehand. The total number of falls dropped from 111 to 95 per month, a decrease of 14%. The percentage of those hospitalized decreased from 29% to 15% of those who have fallen. More than a third of the falls occurred in the bedroom.

**Risk factors:** We found that the risk factors for falls were a previous fall, limited functioning, and general weakness.

**Location:** One third of the falls occurred in the bedroom.

**Prevention:** Installing the kit contributed to preventing falls, mainly among those with limited functioning and general weakness. It also contributed to mitigating the severity of the falls (and subsequent need for hospitalization).

**Cost savings:** The cost of hospitalizations following falls by 65+ year-olds is estimated at more than NIS 350 million in 2022 alone. An initial assessment suggests that the program contributes significantly to saving these costs over time.

**Program challenges:** According to program officials, it was difficult to recruit candidates for the program, such as populations at risk of falling, so as to ensure a significant contribution by the program. Additional obstacles included language difficulties and participants' resistance to the installation of specific items from the kit.

## Recommendations

Our interviews with program officials and the older adult participants suggested several recommendations for improvement:

- Install kits in the homes of additional older adults, as many as possible. It is advisable to start with older adults at higher risk of falling – those with functional limitations and/or those who have fallen in the past. Nevertheless, to prevent future falls it is also important to install the kit in the homes of those not currently at high risk.
- Increase the older adult's awareness of the danger of falling and ways of preventing them.
- Increase the awareness of falling among family members – consider them a target population as they can contribute significantly to preventing falls.
- Provide more detailed explanations to the older adults during the installation, since these explanations can contribute to preventing falls.
- Add bedroom items to the kit, such as a grip handle and/or LED lighting, given the high frequency of falls in bedrooms, contrary to what is reported in the literature.
- Follow up on the program – to validate the statistical analysis and enable generalization of the findings, several options should be considered:
  - Continue interviewing the participants in Beersheba, to increase the number of respondents.
  - Interview the older adult participants in Jerusalem one year after the installation, in order to extend the evaluation period to one year.
  - Interview a control group, such as members of the program Kehila Tomechet (Supportive Community) in the Jezreel Valley, to assess the frequency of falls in a population similar to that of the Upper Galilee participants.
  - Following the kit's installation, calculate the estimated savings in fall-related costs with greater precision.