



# Falls prevention in persons with intellectual disabilities: Development, implementation, and process evaluation of a tailored multifactorial fall risk assessment and intervention strategy



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## ABSTRACT

In the general elderly population, multifactorial screening of fall risks has been shown to be effective. Although persons with intellectual disabilities (ID) fall more often, there appears to be no targeted screening for them. The aim of this study was to develop, implement, and evaluate a falls clinic for persons with ID. Based on guidelines, literature, and expert meetings, a falls clinic for persons with ID was developed. In total, 26 persons with ID and a fall history participated in the study. Process evaluation was conducted with evaluation forms and focus groups. Fifty interventions (0–8 per person) were prescribed. The (para)medical experts, clients, and caregivers described the falls clinic as useful. Advice for improvement included minor changes to clinic content. Logistics were the largest challenge for the falls clinic, for example organizing meetings, completing questionnaires prior to meetings, and ensuring that a personal caregiver accompanied the persons with ID. Furthermore, the need for a screening tool to determine whether a person would benefit from the falls clinic was reported. In conclusion, the falls clinic for persons with ID was considered feasible and useful. Some minor content changes are necessary and there is a need for a screening tool. However, logistics concerning the falls clinic need improvement. More attention and time for multifactorial and multidisciplinary treatment of persons with ID is necessary. Implementation on a larger scale would also make it possible to investigate the effectiveness of the falls clinic with regard to the prevention of falls in this population.

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## 1. Introduction

Persons with intellectual disabilities (ID) are at increased risk for falls and fall-related injuries (Cox, Clemson, Stancliffe, Durvasula, & Sherrington, 2010; Finlayson, Morrison, Jackson, Mantry, & Cooper, 2010; Hsieh, Heller, & Miller, 2001;

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Sherrard, Tonge, & Ozanne-Smith, 2001). Previous retrospective studies investigating falls in persons with ID have demonstrated percentages of fallers ranging from 34 to 70% in their study populations (Cox et al., 2010; Finlayson et al., 2010; Grant, Pickett, Lam, & O'Connor, 2001; Wagemans & Cluitmans, 2006). In our prospective study in older adults with mild to moderate ID, during which falls were registered with monthly fall registration calendars for 1 year, 45% of the participants reported a fall, with a fall rate of 1.00 falls per person year (Smulders, Enkelaar, Weerdesteijn, Geurts, & Schroyensteen Lantman-de Valk, 2012). In comparison, in the general elderly population, one-third of elderly persons fall each year, with estimated fall rates between 0.45 and 0.65 falls per person year (Close, Lord, Menz, & Sherrington, 2005; Gillespie et al., 2009; O'Loughlin, Robitaille, Boivin, & Suissa, 1993; Rubenstein, 2006; Tinetti, Speechley, & Ginter, 1988). It is estimated that 50–60% of injuries in persons with ID are caused by falls (Finlayson et al., 2010; Hsieh et al., 2001; Sherrard, Ozanne-Smith, & Staines, 2004; Willgoss, Yohannes, & Mitchell, 2010). Injury-related visits to emergency departments and hospital admittances in persons with ID are primarily due to falls (Wang, McDermott, & Sease, 2002).

Because of this high number of falls and injuries, falls prevention is very important in persons with ID. In fact, fall prevention has become even more important for this population because the life expectancy of persons with ID is increasing (Day, 1987; Janicki, Dalton, Henderson, & Davidson, 1999), resulting in more age-related problems such as reduced mobility (Enkelaar, Smulders, van Schroyensteen Lantman-de Valk, Geurts, & Weerdesteijn, 2012), which is associated with falls. Multifactorial interventions to prevent falls are the most effective in the general elderly population (Day et al., 2002; Gillespie et al., 2009). A study by Chang et al. showed that multifactorial fall risk assessment and management programs resulted in a fall rate reduction of 37% (Chang et al., 2004). However, a recent meta-analysis showed a non-significant decrease of 9% in the number of fallers after multifactorial assessment (Gates, Fisher, Cooke, Carter, & Lamb, 2008). This discrepancy is probably related to the differing approaches: programs that consisted only of assessment and referral to usual care for treatment were not effective in reducing falls. In contrast, programs that incorporated management of identified risk factors were effective (Gates et al., 2008; Tinetti, 2008). This emphasizes the importance of carrying out the prescribed interventions; that is, the risk assessment may be thorough and complete, but if the interventions resulting from this multifactorial assessment are not followed, falls will not be prevented. Indeed, a recent study in which participants immediately received the interventions was effective in reducing falls and fear of falling (Hansma, Emmelot-Vonk, & Verhaar, 2010).

Existing multifactorial fall risk assessments have not paid specific attention to persons with ID. It may be that physicians in general falls clinics have difficulty determining the appropriate approach for caring for this target group and their specific problems. Fall risk factors in persons with ID are largely comparable to those identified in the general elderly population, including older age, visual deficits, medication use, and co-morbidities (Bruckner & Herge, 2003; Chiba et al., 2009; Finlayson et al., 2010; Grant et al., 2001; Hale, Bray, & Littmann, 2007; Hsieh et al., 2001; Wagemans & Cluitmans, 2006; Willgoss et al., 2010). However, there are also specific risk factors related to the specific conditions of persons with ID (e.g. epilepsy (Chiba et al., 2009; Finlayson et al., 2010; Hsieh et al., 2001; Wagemans & Cluitmans, 2006)). Additionally, risk factors such as cognitive impairment, comorbidities, balance and gait problems (impaired mobility), and higher medication use are more prevalent in persons with ID (Enkelaar et al., 2012; Leipzig, Cumming, & Tinetti, 1999a; Leipzig, Cumming, & Tinetti, 1999b; Nevitt, Cummings, & Hudes, 1991; Stel, Smit, Pluijm, & Lips, 2004; Straetmans, van Schroyensteen Lantman-de Valk, Schellevis, & Dinant, 2007; Tinetti et al., 1988; van Schroyensteen Lantman-de Valk & Walsh, 2008; Woolcott et al., 2009). Furthermore, for existing falls clinics, persons with ID often have to travel far and the unfamiliar environment may hamper them with regard to optimal performance.

Thus, there is a need for an effective multifactorial fall risk assessment and intervention strategy: a falls clinic specifically tailored to persons with ID (Willgoss et al., 2010). The falls clinic should be run by physicians and therapists experienced in working with this target group. Furthermore, the travel distances required for participants should be as brief as possible.

The aim of the present study was to develop such a multifactorial fall risk assessment and fall preventive intervention strategy for persons with ID. A second aim was to implement this falls clinic in service providers for persons with ID and perform a process evaluation.

## 2. Methods

### 2.1. Participants

Participants were selected from a study on fall risk factors in persons with ID. In that study, 86 persons with mild to moderate ID were recruited from three service providers for persons with ID in The Netherlands. Participants had to be at least 50 years old, able to walk independently for at least 10 m, and able to understand simple instructions. Epilepsy was an exclusion criterion in the original study because coming to the floor or lower level due to an epileptic seizure, which might be seen as a "fall," has a different cause than falling related to ID and aging.

In the original study, 82 of the participants registered their fall incidents with monthly fall registration calendars. Persons who reported a fall in the original study were invited to participate in the current study for the falls clinic.

The regional medical ethical committee approved the study. Informed consent was obtained from the participants and, if applicable, their legal representatives.

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