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Developing an understanding of the risk factors for falls among adults with intellectual disabilities: a commentary

MAIN TEXT

Introduction

Falls are a common and serious problem for older people in the general population and the human costs include pain, loss of confidence, loss of independence and mortality (National Institute for Health & Care Excellence [NICE], 2013). Even if the person is not injured, they may have a fear of falling which may result in avoidance of social activities, reduced mobility, and increased frailty (Public Health England [PHE], 2019). Falls also affect the carers of those older people who fall (Ang et al., 2020), including costs in terms of carer time and absence from work (Snooks et al., 2011). Falls in the general population cost the National Health Service (NHS) more than £2.3 billion per year (NICE, 2013).

Whilst there is available evidence for older people in the general population at risk of falls, there is limited research investigating falls among people with intellectual disabilities (ID) who may share many of the same risk factors, and which may increase their risk of falls from a younger age (Cox et al., 2010). The term ID (used throughout this paper) is an internationally recognised term to define people who may be classed as having learning disabilities (LD). ID refers to individuals with a significantly reduced ability to understand new or complex information and to learn and apply new skills (impaired intelligence) which started before adulthood and results in a reduced ability to cope independently (impaired social functioning) (World Health Organisation, 2010). People with mild-to-moderate ID often live independently and are usually able to communicate most of their needs, but they may need support to understand complex issues. People with severe-to-profound ID may require a higher level of support. There are many conditions associated with ID e.g. Down's syndrome, Williams syndrome, and Fragile X syndrome (Mencap 2022). It is estimated that 1.5 million people in the UK have an ID (approximately 2% of the UK's population), with the majority living independently in their local communities or with families or paid support (Mencap 2022; World Health Organisation, 2010). However, the exact numbers are unknown, as they may not be registered with health or social care related services. Falls and fall-related injuries are a common and serious problem for people with ID. Research from various studies suggest

that 25-40% of people with ID experience at least one fall per year (Hsieh et al., 2012; Petropoulou et al., 2017; Finlayson et al., 2010). Around one-third of falls involving people with intellectual disabilities result in injury, with the rate of fractures higher than in the general population, which may be due to an increased risk of osteoporosis (PHE, 2019). It is commonly understood that people with intellectual disabilities may be considered 'older adults' (from the age of 40 years onwards) (Hermans and Evenhuis, 2014). Given this, their risk of falls and subsequent injury may occur earlier than in the general population and over a longer period of time (Oppewal et al., 2014; Pal et al., 2013; Cox et al., 2010).

Willgoss et al. (2010) identified that risk factors for falls in people with intellectual disability may include older age, impaired mobility, epilepsy and behavioural problems. Evidence concerning risk factors for falls in older people within the general population may also be relevant to people with intellectual disabilities who share similar characteristics such as visual or cognitive impairment (Public Health England, 2019). However, there is a need for an increased understanding of the risk factors involved to enable the development of tailored interventions for this population group (Willgoss et al., 2010). A recent review by Pope et al. (2021) aimed to build on previous findings, and explore the available evidence on risk factors for falls in people with ID. This commentary aims to critically appraise the methods used within the review by Pope et al. (2021) and reflect on the applicability of these findings in community practice.

Methods

Pope et al. (2021) conducted a narrative review to identify risk factors for falls among people with ID, building on previous findings of a similar review (Willgoss et al., 2010). A structured approach for documenting a search strategy was followed incorporating key search terms related to falls, risk factors and ID. Literature searches were conducted using electronic databases (AMED, CINAHL, MEDLINE, PsychINFO) in November 2017 and again in July 2019. This was supplemented by searches of Google Scholar, the Cochrane Library and ASSIA. Studies included were those with: a population aged 18 years and over; adults with ID; reported outcomes on risk factors for falls; any geographical location or any accommodation type setting; participants living independently or with support; and those published in English

in academic journals. Single case-studies, opinion pieces, commentaries, or those unable to describe a research methodology or published before February 2009 were excluded.

Screening of titles and full-text papers was undertaken by the first author and checked by the research team. Quality appraisal was undertaken by the research team using an author adapted scoring system of the Critical Appraisal Skills Programme (CASP) where a score of 17 or above represented strong quality and less than 10 reflected weak quality. A narrative synthesis was undertaken to draw out themes from both quantitative and qualitative data. Risk factors identified from more than one paper and including at least one significant association (reported Odds Ratio (OR) and a significance level of <0.05) were described. Thematic analysis was also undertaken to develop key themes from the data, including other risk factors identified (without a significant association reported), and checked by the research team.

Findings

After screening of 705 records, eight studies were included in the review. Publication dates ranged from 2009 to 2019 and studies were conducted in Australia, Japan, Sweden, Scotland, the Netherlands, New Zealand, and the US. Overall, 2,506 participants were included in the review, of which approximately 50% were male. Three studies included participants with mild to moderate ID, with none experiencing profound ID. Another study included a range from mild to profound ID, one study had participants with mostly severe to profound ID, and three studies did not specify the level of ID. Study settings varied from supported living to residential facilities with no study conducted in a hospital setting. Five studies included quantitative data, one qualitative data and a further two were mixed-methods studies. The review's assessment of bias for included studies rated the CASP scores between 13 to 18, which according to the scoring system, indicated good qualities but with some methodological limitations. These included efforts made to minimise re-call bias, limited information on ethical approval, lack of detail as to how the studies' target samples were determined and how people with ID were involved in the data collection.

Nine risk factors were identified to have a significant association with falls in adults with ID. In addition, four main themes relating to potential risk factors for falls among people with ID

were identified by the review (1) the individual; (2) the situation; (3) factors for ongoing risks; and (4) protective factors that reduce falls (see Figure 1).

The Individual

Risk factors that were found to have a significant association with falls and relating to the person included: pre-existing conditions related to muscle weakness such as cerebral palsy (two quantitative papers); strength limitations as a result of underlying conditions such as arthritis and osteoporosis (one quantitative paper); history of previous falls (one quantitative paper); and epilepsy (three quantitative papers). Other potential factors identified in this theme included: increasing age; cognitive insight; and gender (females identified as being more at risk of falls).

The Situation

Situational risk factors with a significant association included: unpredictability/impulsivity (one quantitative paper) and institutionalized environments compared to other types of accommodation (one quantitative paper). Other potential factors in this theme included: increased mobility; distractibility; location e.g., being indoors more so than outdoors and carers' vigilance (i.e., carers may be less protective if the person is indoors when vigilance is more relaxed); the home environment due to taking more risks when encountering hazards such as people, furniture and temporary environmental changes; and being outdoors during autumn and winter.

Ongoing risks

Ongoing risk factors with a significant association included: urinary incontinence and rushing to the bathroom (2 quantitative papers); engaging in vital activity of personal care such as toileting, eating or sleeping (1 quantitative paper); and inappropriate or non-use of assistive equipment (2 quantitative papers). Other potential factors included: anticonvulsant medication (no reason provided, and a further study identified no differences between fallers and non-fallers for this factor); the role of carers in fall-management (consistency of support); and a recurring theme of the multi-factorial nature of falls for people with ID, suggesting that falls do not occur due to isolated single risk factors.

Protective factors that reduce falls

Identified risk protectors included: carer vigilance and an awareness of environmental modifications to prevent falls such as removing trip hazards and improving lighting; having Down's Syndrome (although no reasons given for this finding); people with Autism Spectrum Disorder (ASD) who may be less inclined to interact with the environment and in some instances may be risk adverse; and people with moderate to severe ID with poor motor control who were more likely to be protected from falls by carers.

INSERT HERE:

Figure 1: Potential risk factors and protectors for falls among people with intellectual disabilities (adapted from Pope et al. 2021)

Commentary

Using the Joanna Briggs Institute's Critical Appraisal Tool for Systematic Reviews and Research Syntheses (Aromataris et al., 2015) to appraise the review conducted by Pope et al. (2021), three of the eleven criteria were judged to be unclear. These criteria related to the use of critical appraisal and data extraction. The authors utilised the CASP (2013) but failed to report which of the tools were used. An author adapted scoring system was also applied but this does not allow for weighting of individual questions and may therefore reflect an inaccurate portrayal of quality. It was also unclear if critical appraisal and data extraction were undertaken independently by the research team. For these reasons, the review findings although comprehensive, should be interpreted with some caution when considering the implications for community practice.

The review's authors conclude that the number of risk factors identified from 2010 onwards has increased since Willgoss et al., (2010)'s review and that previously identified risk factors of increasing age, epilepsy, increased mobility and behavioural aspects were also recognised. New risk factors identified by Pope et al. (2021) were related to the individual, the situation, and ongoing risk.

Working with this population in the community, an understanding of an individual's medical history could help to raise awareness of a heightened falls risk. The findings from this review suggests that the **individual risk factors** of decreasing physical ability, epilepsy, paretic conditions, and previous falls history should be taken note of within the patient's medical history due to their association with an increased risk of falls. It is also important to check that the individuals with ID have access to an annual health check as this can enhance their overall healthcare and reduce contributory risk factors for falls (Bakker-van Gijssel et al., 2018). As part of this appraisal process it is important to ensure that individuals with ID also have access to a regular medication review and the option to take part in physical fitness and balance programme (O'Dwyer et al., 2018; Hale et al., 2016).

Further **ongoing risk factors** which should be identified when reviewing the individual's medical history are urinary incontinence and rushing to the bathroom; engaging in personal care, toileting, eating or sleeping; and inappropriate or non-use of assistive equipment. If these risk factors are identified, the use of an educational program on assisted aids, environmental adaptations such as a review of toilet access, strength programmes, and a review of personal care safety may be necessary to reduce the impact of these increased risks (Finlayson, 2018). Similarly, education on falls prevention for patients, family, and carers and/or a referral to a multi-disciplinary falls-prevention clinic may be warranted (Finlayson, 2018; Smulders et al., 2013).

These review findings also suggest that the **situational risk factors** of unpredictability/impulsivity, and institutionalized environments should be considered as an important factor associated with an increased risk of a fall. To counteract some of these risks, the use of home adaptations, mobility aids and assistive technology may be considered (Finlayson, 2018; Bainbridge et al., 2017).

Identification of fall risk factors in individuals with ID is essential due to the multifactorial and dynamic nature of falls (Ho et al., 2019). To help those in public health, health services and social care, Public Health England have produced guidance on preventing falls in people with learning disabilities (PHE 2019). This tailored guidance suggests that possible contributors to falls should be considered in an individualised risk assessment including internal factors such

as health, vision, and fitness, behaviour and lifestyle, and external factors relating to environmental hazards, both at home and outside. Pro-active primary prevention is stated as useful, promoting a healthy lifestyle including physical activity (with risk assessment) and regular health checks including vision, hearing and medication. More detailed suggestions for preventative strategies and risk assessments can be found in the guidance (PHE 2019).

A multi-disciplinary team approach is important in preventing falls by people with ID (Finlayson, 2018). Community nurses may identify people with ID at risk of falls, and work alongside other healthcare professionals such as Occupational Therapists, Physiotherapists, General Practitioners, and carers to provide tailored and multidisciplinary falls-prevention interventions for individuals with ID living in the community. A referral by a member of the multi-disciplinary team, such as a Community Nurse, to an OT may be beneficial for assessment of individual and environmental risk factors. OTs can also tailor falls and injury prevention strategies for people with ID and monitor the use of assistive technology (Finlayson et al., 2014). This monitoring is important to ensure that aids and adaptations are used safely and maintained regularly to prevent injury (PHE, 2019).

Due to the limited amount of literature available on risk factors for falls among people with ID, and the wide variation in studies' samples, there is still a need to improve the research evidence on this topic. Age and gender were suggested fall risk factors for people with ID; and some protective factors for people with ID were also mooted by the available evidence, but further research is needed to confirm the limited studies' findings and the underlying reasons. Other areas for further research include addressing the need for standardized screening tools for people with ID who may have difficulty responding to self-assessment questions without support (Maring et al., 2017). Finally, there is a corresponding need to develop multi-component fall-prevention interventions for people with ID to address the wide variety of risk factors involved. Any future research should strive to include people with ID (and not just include those with mild-to-moderate ID), their families, carers, and supporters.

Recommendations

- There is a need for further research to increase healthcare professionals' understanding of the range of individual, situational and ongoing risk factors for falls in people with ID, and subsequent falls-prevention interventions.
- Community nurses should provide guidance on health-related issues associated with falls, and work in multidisciplinary healthcare teams as well as with carers of people with ID to provide falls-prevention interventions for individuals with ID at risk of falls.

CPD Reflective Questions

- What are the differing risk factors for falls in people with ID compared to those in the general population and how could they be managed in the community?
- What interventions could be developed for addressing the multifactorial risk factors involved in falls among people with ID?

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