

Interventions in community settings that prevent or delay disablement and promote healthy ageing in later life.

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The population of older people in Scotland has been growing over the last century and is projected to reach 1.34 million in 2033 (an increase of around 31 per cent compared to 2008)¹. It is not inevitable that all older people will live with disability and ill health, but identifying effective interventions that prevent or delay disablement in later life is a public health priority². Evidence from review-level and primary studies suggests that the case for implementation of complex interventions is relatively weak but there are some areas of potentially promising development.

Complex interventions

For *older people at low risk*, comprehensive geriatric assessment and multidimensional intervention can be effective, in terms of reducing institutional admission and risk of falls, and improving physical function, but effects are small and more research is needed to identify which components of care are most effective. For *frail older people at higher risk* the evidence is less robust.

Multi-dimensional home visit interventions have the potential to achieve small positive benefits, but evidence is not consistent and may be dependent on factors such as the experience of the care provider, easy access to provision of follow-up services, and length of follow-up. A comprehensive approach that incorporates a variety of intervention strategies (e.g. disease management and health promotion) targeting disablement risk factors, addressing the usual multiple, co-existing medical, functional, psychological and environmental problems, may have potential to prevent and delay disablement-but the evidence is far from conclusive.

There is inadequate evidence to support strategies to achieve health promotion and preventative care in older people through broad-based screening and assessment in primary care. Preventative strategies based on advice alone do not appear to be effective for older people.

Integrated service delivery programmes have been shown to prevent functional decline in older people with disability, but long-term follow-up is essential and more evidence is required to support the implementation of a large-scale programme in the Scottish context.

Falls prevention

There is consistent evidence for the benefits of exercise in preventing the *risk and rate of falls*³, particularly for long-term exercise programmes, and they may be cost-effective⁴, but the evidence for multi-factorial intervention programmes is less convincing⁵. Multi-factorial assessment followed by targeted intervention appears to be effective in reducing the rate of falls, but not risk of falls. In other words the effects are stronger for reducing fall recurrences than first falls. The success of multi-factorial falls prevention programmes is likely to depend on integration of service delivery working across the community-hospital interface and incorporating a range of professional care.

Specific interventions

Evidence for specific interventions is also mixed. There is good evidence that **exercise** programmes for older people can improve strength, aerobic capacity, balance and function. The magnitude of effects range from small to large, reduce with age and are smallest for the older age group (80+) and

those with pre-existing disability. In addition, there is evidence that aerobic exercise has an effect on some measures of cognitive function, such as cognitive speed, but the magnitude of effect is *small*, and not consistent for all measures. There is a lack of evidence to link gains in impairment and functional outcomes with reduction of disability – an outcome much more relevant to the ability to maintain independence and live in the community. Benefits gained from exercise are dependent on long-term adherence and exercise behaviour, which is generally established in early life and difficult to shift. The most promising primary-care-based interventions for increasing physical activity in older people are those that offer written material as reminders and are tailored to participants' characteristics. In addition, it appears to be important to make an impact "upstream" before retirement, and focus on activities that generate feelings of enjoyment and satisfaction⁶.

The evidence-base for the effectiveness of **nutritional interventions** and **vision screening** is relatively *weak* for older people. There is some evidence that dietary advice, in combination with supplements improve dietary intake and weight gain (at 1 year) in undernourished older people, but there is no evidence of effect on mortality or hospital admission rates. **Medication review** by pharmacist or other health professionals does not have any effect on reducing mortality or hospital admission. Effects on quality of life are minimal, although there is evidence (from two studies) that medication review may reduce the rate of falls. There is limited evidence that **advice on assistive devices** and environmental modification, given by occupational therapists, can improve function and reduce the risk of falls in older people, but none of these interventions are likely to have a large impact on reducing disablement, when deployed in isolation.

The information and communication technology (telecare and telehealth interventions) literature is a newly emerging field that has not been subjected to high-quality evaluation; most of the evidence is based on observational cohort studies without control groups or small, low quality, randomised controlled trials. There is very little evidence for the impact of telecare at the population-level for older people. There is limited evidence that telecare enhances quality of life for frail older people and their carers and increases their ability to live independently in their own homes. Experts in the field of information and communication technology advise that overly optimistic assessment of the effects of telecare on the demand for institutional care, both in the short and long term, should be avoided⁷.

Social isolation is a common problem in later life and is associated with poor physical health and increased mortality, mental ill health, depression, suicide and dementia⁸ but it has not been extensively researched in older people, particularly in the UK. There is limited evidence, of variable quality, for group activities, that include some form of educational or training input, and for social activities that target specific groups of people, but the effects are likely to be small and not generalisable. One-to-one interventions (home visits), telephone friendships and nurse-moderated computer links are not effective in reducing loneliness or social isolation⁹. The research to-date has focused on a few potential causes of social isolation and loneliness, but in reality the causes are complex and related to many factors, including environmental, social and health-related influences. It is therefore not surprising that the effectiveness of the interventions is variable and the effect-sizes are generally small.

Conclusions

The scan identified many areas of conflicting evidence, along with several areas of unknown effectiveness, partly due to unstandardised use of outcomes and poor experimental design, but also because modifying risk factors in older people is difficult and sometimes, especially after significant disability is already present, simply not possible. There is clear evidence for encouraging exercise-related activities for older people, as a means of improving specific physical functioning (e.g. walking) but the capacity to exercise is only one component of health and the impact of any exercise intervention, on a population level is probably low, unless started in earlier life and followed-up rigorously. Current and recent Scottish policy advocates many of the interventions reviewed in the scan such as falls prevention, telecare and co-ordinated, integrated care delivery, but the impact of many of these interventions for older people in Scotland is unknown. Careful consideration of the evidence-along with feasibility, affordability, sustainability and effects on equity-needs to be considered by stakeholders in the process of developing any new and innovative intervention in this field.

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