



UCL INSIGHTS: RESEARCH BRIEFING

Preventing Dementia: 9 key risk factors

One in three cases of dementia could be potentially prevented by targeting nine risk factors, including continuing education in early life, reducing hearing loss in mid-life, and stopping or reducing smoking. Such prevention requires public health interventions, as well as individual action. Acting now will vastly improve life for people with dementia and their families, and in doing so, will transform the future of society.

Dementia is the greatest global challenge for health and social care in the 21st century. It occurs mainly in older people, so worldwide increases in numbers and costs are driven by increased longevity resulting from the welcome reduction in people dying prematurely.

- **47 million people** living with dementia in **2015**
- **115 million people** will be living with dementia by **2050**
- **US\$818 billion:** global cost of dementia in **2015**

Dementia affects both the individual living with it and their relatives, who have to cope with seeing a family member or friend become ill and decline while responding to their needs, such as increasing dependency and changes in behaviour. In addition, it affects wider society, as people require more health and social care.

Although the percentage of older people developing dementia has decreased in some countries, the overall proportion of the population aged over 65 continues to rise, so numbers with dementia will continue to increase hugely.

Prevention is possible, as shown by the **20% reduction in the percentage of people developing dementia** accounted for by people who have **more education and a healthier lifestyle**.

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Key research findings

This research modelled the impact of nine health and lifestyle factors at various stages in life producing the first life course analysis (see infographic). It found that it's never too early and never too late to prevent dementia, and that by implementing these nine lifestyle changes, rates of dementia can be greatly decreased.

The research found there is the **potential to delay or prevent more than a third of dementia cases (35%)** allowing people to have more years of disease free life or never develop dementia. Interventions to reduce the risk of dementia include:

- Active **treatment of high blood pressure** in middle aged and older people without dementia
- Strengthening the brain through **education** and maintaining a cognitively enriched environment in adulthood (be **socially engaged, manage hearing loss, manage depression**).
- Preventing damage to the brain through **exercise, stopping smoking, reducing obesity** in midlife, and **managing diabetes**.

There is further preliminary evidence that other risk factors may include being exposed to higher levels of particulate matter in the air, diet (the Mediterranean diet protects against dementia), sleep disorders and vision impairment.

KEY MESSAGES

- Dementia is the greatest global challenge for health and social care in the 21st century
- The number of people with dementia is increasing globally
- Prevention is possible and rates of dementia can be greatly decreased
- **9 lifestyle risk factors** account for **35% of the risk** of getting dementia
- While genes affect Alzheimer's disease they are relatively less important in older people. The only important gene APOE4 accounts for 7% of risk
- Ambitious action is required at both a policy and societal level to implement preventative strategies

Recommendations

There are clear implications for future policy development around the planning and delivery of social care for dementia patients. Key policy priorities should be to provide:

- safe and affordable **social activity and transportation** to keep people social engaged and physically active, increasing exercise, reducing obesity, managing diabetes and tackling social isolation
- **preventative programmes and measures**; such as individual prescriptions for middle aged people, encompassing hearing checks and blood pressure measurements, smoking cessation and exercise and weight advice, discussion about activity and social contact; to reduce their chance of developing dementia.

The growing number of dementia cases worldwide have the potential to put an ever increasing strain on public health services and cost to society (see UCL Research Insight: Forecast trends for dementia and disability). This cost has already been estimated at more than US\$800 billion globally in 2015. Reducing the number of dementia cases through implementation of preventative measures can greatly reduce the forecast future costs of treatment and care.

In addition it will reduce the cost to families who provide care (and in doing so have to reduce or stop working) as well as reducing the risk of carers developing depression and anxiety. This in turn impacts on their ability to provide care leading to care home admission for the person with dementia.

There is a responsibility for health professionals and for society as a whole to address and implement these interventions widely and effectively to reduce the number of people with dementia, extend the active lives of older people and reduce the time with illness.

NINE PREVENTABLE RISK FACTORS

- stopping education at the age of 12-15 years old
- high blood pressure
- obesity
- hearing loss in mid-life (45-65 years old)
- smoking
- depression
- physical inactivity
- social isolation
- diabetes in later life (over 65 years old)

HOW THE MODEL WAS CALCULATED

The model used the risk factors which have been specified in NICE guidelines and by the US National Institute of Health. The difference each risk factor made to the future development of dementia was calculated (using numbers obtained by amalgamating all the different research papers).

The importance of each risk factor for the whole population was calculated by considering how common the risk factor was. The likelihood of any person having any combination of these risk factors (communality) was calculated and we adjusted for the likelihood than an individual might have several of the risks.

The estimates, which are population attributable fractions (PAF), show the proportion of all dementia cases that could be prevented if the risk factors were fully eliminated.

Based on Livingston G, Sommerlad A, Orgeta V, Costafreda S, Huntley J, Ames D, Ballard C, Banerjee S, Burns A, Cohen-Mansfield J, Cooper C, Fox N, Gitlin L, Howard R, Kales HC, Larson E, Ritchie K, Rockwood K, Sampson EL, Samus Q, Schneider L, Selbæk G, Teri, L, Mukadam N. The Lancet International Commission on Dementia Prevention, Intervention and Care. THELANCET-D-16-06479R2 S0140-6736(17)31363-6[http://dx.doi.org/10.1016/S0140-6736\(17\)31363-6](http://dx.doi.org/10.1016/S0140-6736(17)31363-6)

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