Clean air and less alcohol could reduce dementia risk

Ali Mitib, The Times, Friday July 31 2020

Targeting a range of risk factors associated with dementia, such as excessive drinking, exposure to air pollution or head injuries, could delay or prevent 40 per cent of cases, scientists have said.

Researchers have highlighted 12 risk factors for dementia that they believe can be modified. Although some cannot be changed, such as genes or ethnicity, many relate to lifestyle, according to the report in The Lancet Commission.

The report builds on research published in 2017 by the team, who identified nine preventable causes that span from childhood to later life. These include lack of early education, mid-life hearing loss, hypertension and obesity, smoking, depression, social isolation, physical inactivity and diabetes.

In their latest update, the experts added to the list excessive alcohol intake, head injury in mid-life and exposure to air pollution in later life.

Combined, the three new risk factors are associated with 6 per cent of all dementia cases, the researchers said, with an estimated 3 per cent of cases attributable to head injuries in mid-life, 1 per cent to excessive alcohol consumption (more than 21 units per week) in mid-life and 2 per cent to exposure to air pollution in later life. The remaining risk factors are associated with 34 per cent of all dementia cases, they added.

About 850,000 people in the UK are living with dementia, a figure that is predicted to rise to 1.6 million by 2040.

In the report, compiled by 28 dementia experts from around the world, the researchers call for nations and individuals to be ambitious about preventing dementia and provide a list of recommendations that can help. These actions are especially important in low-income and middle-income countries where about two thirds of people with dementia live, they said.

The author of the study, Gill Livingston, of University College London, said: “Interventions are likely to have the biggest impact on those who are disproportionately affected by risk factors, like those in low and middle- income countries and vulnerable populations, including black, Asian and minority ethnic communities.

“We need to think beyond promoting good health to prevent dementia and begin tackling inequalities to improve the circumstances in which people live. We can reduce risks by creating healthy environments for communities, where physical activity is the norm, better diet is accessible for all and exposure to excessive alcohol is minimised.”

Professor Livingston praised Boris Johnson’s campaign for “better health”, as obesity and lack of exercise are among the risk factors for dementia. “That may be helpful, particularly if they are beginning to think about obesogenic environments and making it safe for people to ride bikes,” she said.

Research has indicated that the incidence of dementia in Europe and North America has fallen by about 15 per cent every decade for 30 years — probably because of lifestyle changes such as a reduction in smoking, even though the number of people with dementia is rising as people live longer.

John Hardy, professor of neuroscience at University College London, who was not involved in the study, said: “There is good epidemiological evidence that incidence of dementia has gone down over the last 30 years. This probably relates to better heart and general health in western societies. This review systematically explores what may underlie these improvements so that public policy can direct efforts towards further improvements.

- **Being obese** in your twenties, thirties or forties more than doubles your risk of developing dementia, whereas between 50 and 69 the extra risk is 50 per cent for men and zero for women. A study by Columbia University in New York also found that having **diabetes or high blood pressure** as a teenager made dementia more likely later.

LANCET: 30th July 2020: "Dementia prevention, intervention, and care: 2020 report of the Lancet Commission."

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30367-6/fulltext

Executive summary

The number of older people, including those living with dementia, is rising, as younger age mortality declines. However, the age-specific incidence of dementia has fallen in many countries, probably because of improvements in education, nutrition, health care, and lifestyle changes. Overall, a growing body of evidence supports the nine potentially modifiable risk factors for dementia modelled by the 2017 Lancet Commission on dementia prevention, intervention, and care: less education, hypertension, hearing impairment, smoking, obesity, depression, physical inactivity, diabetes, and low social contact. We now add three more risk factors for dementia with newer, convincing evidence. These factors are excessive alcohol consumption, traumatic brain injury, and air pollution. We have completed new reviews and meta-analyses and incorporated these into an updated 12 risk factor life-course model of dementia prevention. Together the 12 modifiable risk factors account for around 40% of worldwide dementias, which consequently could theoretically be prevented or delayed. The potential for prevention is high and might be higher in low-income and middle-income countries (LMIC) where more dementias occur.

Our new life-course model and evidence synthesis has paramount worldwide policy implications. It is never too early and never too late in the life course for dementia prevention. Early-life (younger than 45 years) risks, such as less education, affect cognitive reserve; midlife (45–65 years), and later-life (older than 65 years) risk factors influence reserve and triggering of neuropathological developments. Culture, poverty, and inequality are key drivers of the need for change. Individuals who are most deprived need these changes the most and will derive the highest benefit.

Policy should prioritise childhood education for all. Public health initiatives minimising head injury and decreasing harmful alcohol drinking could potentially reduce young-onset and later-life dementia. Midlife systolic blood pressure control should aim for 130 mm Hg or lower to delay or prevent dementia. Stopping smoking, even in later life, ameliorates this risk. Passive smoking is a less considered modifiable risk factor for dementia. Many countries have restricted this exposure. Policy makers should expedite improvements in air quality, particularly in areas with high air pollution.

We recommend keeping cognitively, physically, and socially active in midlife and later life although little evidence exists for any single specific activity protecting against dementia. Using hearing aids appears to reduce the excess risk from hearing loss. Sustained exercise in midlife, and possibly later

life, protects from dementia, perhaps through decreasing obesity, diabetes, and cardiovascular risk. Depression might be a risk for dementia, but in later life dementia might cause depression. Although behaviour change is difficult and some associations might not be purely causal, individuals have a huge potential to reduce their dementia risk.

In LMIC, not everyone has access to secondary education; high rates of hypertension, obesity, and hearing loss exist, and the prevalence of diabetes and smoking are growing, thus an even greater proportion of dementia is potentially preventable.

Amyloid-β and tau biomarkers indicate risk of progression to Alzheimer's dementia but most people with normal cognition with only these biomarkers never develop the disease. Although accurate diagnosis is important for patients who have impairments and functional concerns and their families, no evidence exists to support pre-symptomatic diagnosis in everyday practice.

Our understanding of dementia aetiology is shifting, with latest description of new pathological causes. In the oldest adults (older than 90 years), in particular, mixed dementia is more common. Blood biomarkers might hold promise for future diagnostic approaches and are more scalable than CSF and brain imaging markers.

Wellbeing is the goal of much of dementia care. People with dementia have complex problems and symptoms in many domains. Interventions should be individualised and consider the person as a whole, as well as their family carers. Evidence is accumulating for the effectiveness, at least in the short term, of psychosocial interventions tailored to the patient's needs, to manage neuropsychiatric symptoms. Evidence-based interventions for carers can reduce depressive and anxiety symptoms over years and be cost-effective.

Keeping people with dementia physically healthy is important for their cognition. People with dementia have more physical health problems than others of the same age but often receive less community health care and find it particularly difficult to access and organise care. People with dementia have more hospital admissions than other older people, including for illnesses that are potentially manageable at home. They have died disproportionately in the COVID-19 epidemic. Hospitalisations are distressing and are associated with poor outcomes and high costs. Health-care professionals should consider dementia in older people without known dementia who have frequent admissions or who develop delirium. Delirium is common in people with dementia and contributes to cognitive decline. In hospital, care including appropriate sensory stimulation, ensuring fluid intake, and avoiding infections might reduce delirium incidence.

Key messages

- Three new modifiable risk factors for dementia
- New evidence supports adding three modifiable risk factors—excessive alcohol consumption, head injury, and air pollution—to our 2017 Lancet Commission on dementia prevention, intervention, and care life-course model of nine factors (less education, hypertension, hearing impairment, smoking, obesity, depression, physical inactivity, diabetes, and infrequent social contact).
- Modifying 12 risk factors might prevent or delay up to 40% of dementias.
- Be ambitious about prevention
- Prevention is about policy and individuals. Contributions to the risk and mitigation of dementia begin early and continue throughout life, so it is never too early or too late. These actions require both public health programmes and individually tailored interventions. In

addition to population strategies, policy should address high-risk groups to increase social, cognitive, and physical activity; and vascular health.

- Specific actions for risk factors across the life course
- Aim to maintain systolic BP of 130 mm Hg or less in midlife from around age 40 years (antihypertensive treatment for hypertension is the only known effective preventive medication for dementia).
- Encourage use of hearing aids for hearing loss and reduce hearing loss by protection of ears from excessive noise exposure.
- Reduce exposure to air pollution and second-hand tobacco smoke.
- Prevent head injury.
- Limit alcohol use, as alcohol misuse and drinking more than 21 units weekly increase the risk of dementia.
- Avoid smoking uptake and support smoking cessation to stop smoking, as this reduces the risk of dementia even in later life.
- Provide all children with primary and secondary education.
- Reduce obesity and the linked condition of diabetes. Sustain midlife, and possibly later life physical activity.
- Addressing other putative risk factors for dementia, like sleep, through lifestyle interventions, will improve general health.
- Tackle inequality and protect people with dementia
- Many risk factors cluster around inequalities, which occur particularly in Black, Asian, and minority ethnic groups and in vulnerable populations. Tackling these factors will involve not only health promotion but also societal action to improve the circumstances in which people live their lives. Examples include creating environments that have physical activity as a norm, reducing the population profile of blood pressure rising with age through better patterns of nutrition, and reducing potential excessive noise exposure.
- Dementia is rising more in low-income and middle-income countries (LMIC) than in high-income countries, because of population ageing and higher frequency of potentially modifiable risk factors. Preventative interventions might yield the largest dementia reductions in LMIC.

For those with dementia, recommendations are:

- Provide holistic post-diagnostic care
- Post-diagnostic care for people with dementia should address physical and mental health, social care, and support. Most people with dementia have other illnesses and might struggle to look after their health and this might result in potentially preventable hospitalisations.
- Manage neuropsychiatric symptoms
- Specific multicomponent interventions decrease neuropsychiatric symptoms in people with dementia and are the treatments of choice. Psychotropic drugs are often ineffective and might have severe adverse effects.
- Care for family carers
- Specific interventions for family carers have long-lasting effects on depression and anxiety symptoms, increase quality of life, are cost-effective and might save money.
- Acting now on dementia prevention, intervention, and care will vastly improve living and dying for individuals with dementia and their families, and thus society.