



**Alzheimer's Disease
International**

The global voice on dementia

World Alzheimer Report 2014

Dementia and Risk Reduction

AN ANALYSIS OF PROTECTIVE AND MODIFIABLE FACTORS

SUMMARY SHEET

Background

This report examines critically the evidence for the existence of modifiable risk factors for dementia and focuses upon sets of potential modifiable risk factors in the following key domains: developmental, psychological and psychosocial, lifestyle and cardiovascular.

Epidemiology is the discipline that studies the distribution, the causes and impact of health and ill health in populations. Epidemiology is mainly concerned with the estimation of the number of those affected by a certain health condition or trait in the population, and with the identification of risk factors for disease.

Prevalence is the proportion of those with the disease in a given population and is a broad measure, or a snapshot, of the impact of the disease at a given point in time. Incidence is the rate at which new cases occur in that population and is therefore a measure of risk of developing the disease.

Prevalence and incidence are closely linked, prevalence being the product of incidence and duration of the disease episode. Because late-life dementia cannot be treated, duration essentially corresponds to survival. In other words, the number of those with dementia (i.e. dementia prevalence) depends on risk of developing the disease (i.e. incidence) and on the length of survival among those who are affected in the general population.

A large variety of potential risk and protective factors for dementia and cognitive impairment have been investigated in epidemiological studies and some of these have also been tested in experimental studies.

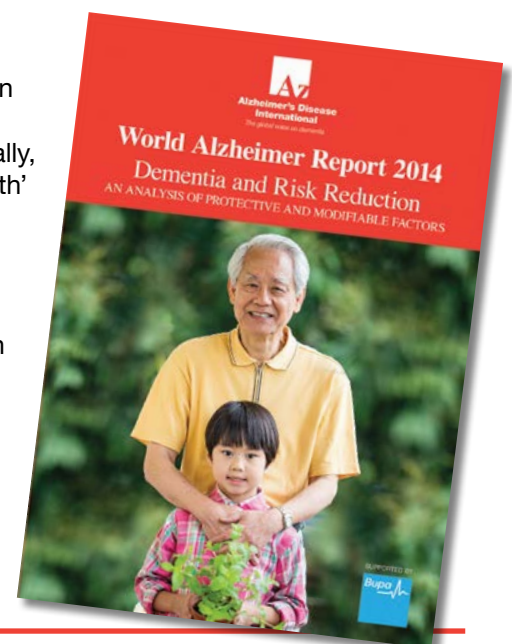
The current focus on modifiable risk factors is justified by their potential to be targeted for prevention at a population level. However, non-modifiable risk factors (eminently age, gender and genetic factors) are also very important. Although at present genetic factors

cannot be modified they can be used to identify those at higher risk who may be targeted for subgroup prevention programs; and because complex gene-environment interactions likely exist the actual expression of these genes might be modified too.

Marked inter-individual differences in cognitive health in late-life are observed at a population-level. These differences may in part be a function of the level of exposure to a number of factors across the entire life course. In general, they are associated with an increased or reduced future likelihood of cognitive impairment and dementia in populations.

Because there are no established diagnostic biomarkers of dementia-related brain damage, and because the mechanisms that link this damage to the expression of dementia symptoms are not fully understood, prevention of dementia is commonly conceived as the delay of the clinical onset of the disease rather than a slowing or avoidance of the development of the underlying neuropathology.

Similar to other chronic diseases primary prevention of dementia corresponds, ideally, to 'delay until death' of symptomatic onset, or, failing that a delaying or deferring of onset to older ages than that at which it would otherwise have occurred.



The full report can be downloaded from the ADI website

www.alz.co.uk/worldreport2014

Summary of risk factors

The strongest evidence for possible causal associations with dementia are those of low education in early life, hypertension in midlife, and smoking and diabetes across the life course.

Improved detection and treatment of diabetes and hypertension, and smoking cessation, should be prioritised, including for older adults who are rarely specifically targeted in prevention programs. Increased physical activity and reduction in levels of obesity are also important.

There is considerable potential for reduction in dementia incidence associated with global improvements in access to secondary and tertiary education. There is also consistent evidence from several studies for an inverse association between cognitive activity in later-life and dementia incidence. However, this association may not be causal, and the benefits of cognitively stimulating activities need to be tested in randomised controlled trials.

While cardiovascular health is improving in many high income countries, it is deteriorating elsewhere. Many low and particularly middle income countries show a pattern of increasing cardiovascular conditions, hypertension and diabetes. The largest increase in dementia prevalence in the coming decades will be in the low and middle income countries, where the risk factors identified in this report present an increasing problem.

There is no evidence strong enough at this time to claim that lifestyle changes will prevent dementia on an individual basis. However, combining efforts to tackle the global burden and threat of NCDs is important.

Recommendations

There is persuasive evidence that the dementia risk for populations can be modified through reduction in tobacco use and better control and detection for hypertension and diabetes, as well as cardiovascular risk factors. A good mantra is “What is good for your heart is good for your brain”.

Based on the evidence, brain health promotion messages should be integrated in public health promotion campaigns such as anti-tobacco or non-communicable disease (NCD) awareness campaigns, with the message that it’s never too late to make these changes.

This report strongly suggests that dementia needs to be included on World Health Organization (WHO) and national NCD planning.

Research should test hypotheses on lifestyle and control of risk in randomised controlled trials when feasible, and explore other sources of evidence when it is not. The quality and relevance from observational studies should be enhanced (include any dementia as an outcome, harmonise exposure/outcomes, careful reviewing of systematic reviews and creation publicly accessible archives of data).

Conclusions

The future course of the global dementia epidemic is likely to depend crucially upon the success or otherwise of continuing efforts to improve global public health. Combining efforts to tackle the increasing global burden of NCDs will be strategically important, efficient and cost-effective.

There may be potential to add to people’s motivation to make and maintain changes in their physical activity, diet and smoking habit, to test for hypertension, cholesterol and diabetes, and adhere to prescribed treatments, if they understand that by doing so they may significantly reduce their risk of developing dementia in later life.

An important component of this message is that ‘it is never too late’. The NCD prevention strategy focuses upon middle-aged persons, and the prevention of ‘premature mortality’. However, evidence presented in our report suggests that control of diabetes, smoking cessation, and increases in physical and cognitive activity, have the potential to reduce the risk of dementia even in late-life.

Hence, while the message is becoming clear, the optimal prevention strategy, and the ‘messaging’ to achieve the desired objectives remain obscure. We are, in truth, at the foothills with a mountain to climb, in particular in comparison to the evidence-base developed over the last 50 years to guide cardiovascular disease prevention and health promotion. Alzheimer’s Disease International intends to follow-up this report with a selection of ‘early adopter’ case studies of brain health promotion and dementia prevention programmes, in an attempt to learn from these experiences, and understand which approaches are most likely to gain traction.

If we can all enter old age with better developed, healthier brains we are likely to live longer, happier and more independent lives with a much reduced chance of developing dementia. With an estimated global societal economic cost of dementia of over US \$600 billion, and rising, the stakes could hardly be higher.

Alzheimer’s Disease International (ADI) is the international federation of Alzheimer associations throughout the world. Our vision is an improved quality of life for people with dementia and their families.

Alzheimer’s Disease International
www.alz.co.uk
f alzheimersdiseaseinternational
t @AlzDisInt



Alzheimer’s Disease International

The global voice on dementia

The World Alzheimer Report 2014 was independently researched and authored by Prof Martin Prince, Dr Matthew Prina, Dr Maëlienn Guerchet, Prof Emiliano Albanese and other contributors, on behalf of the Global Observatory for Ageing hosted at King’s College London. The key messages and recommendations were developed jointly by the Global Observatory and Alzheimer’s Disease International.