Global prevalence of dementia and prevention strategy

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Alzheimer's Disease International

The global voice on dementia

World Alzheimer Report 2014

Dementia and Risk Reduction

AN ANALYSIS OF PROTECTIVE AND MODIFIABLE FACTORS

Global Observatory for Ageing and Dementia Care

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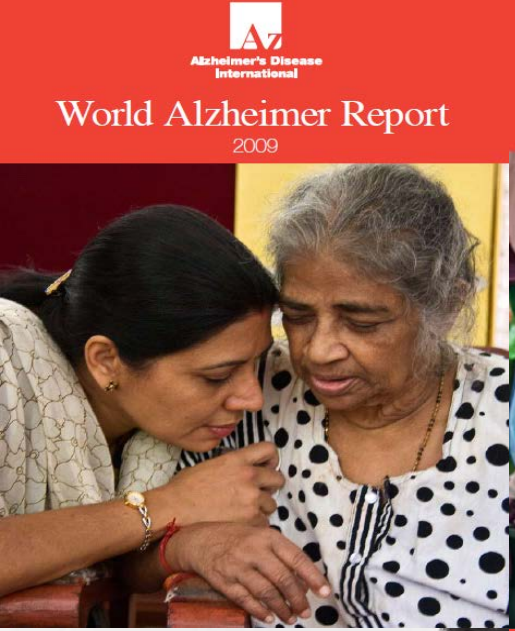

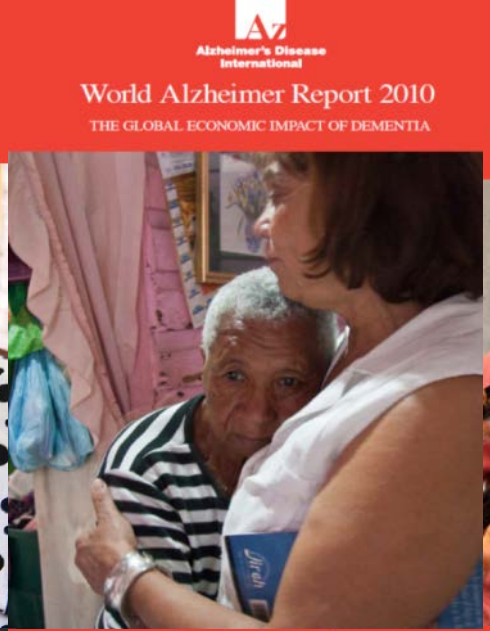

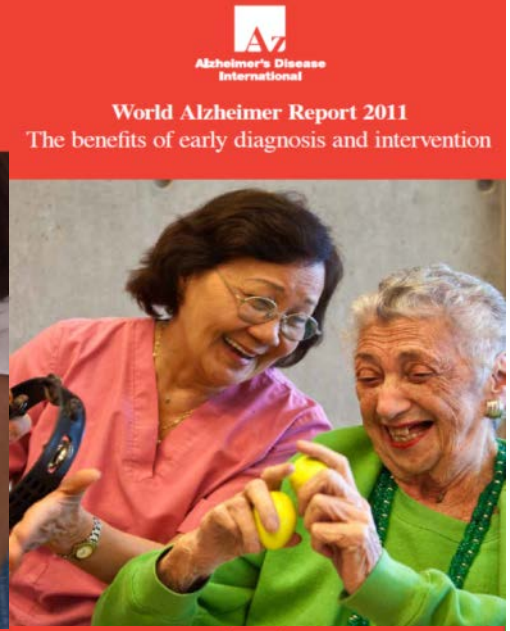

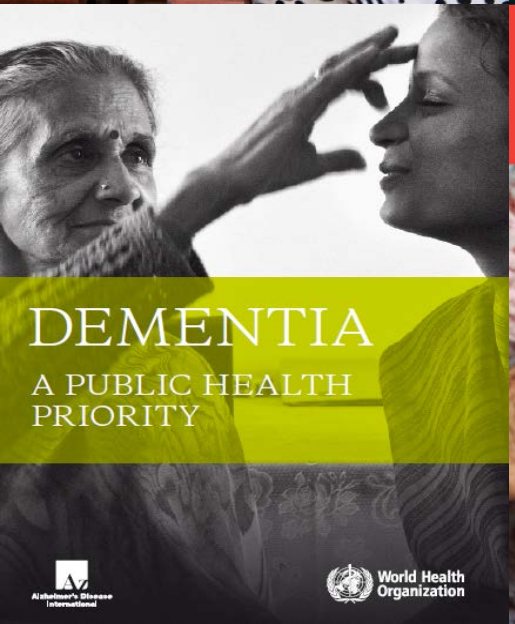

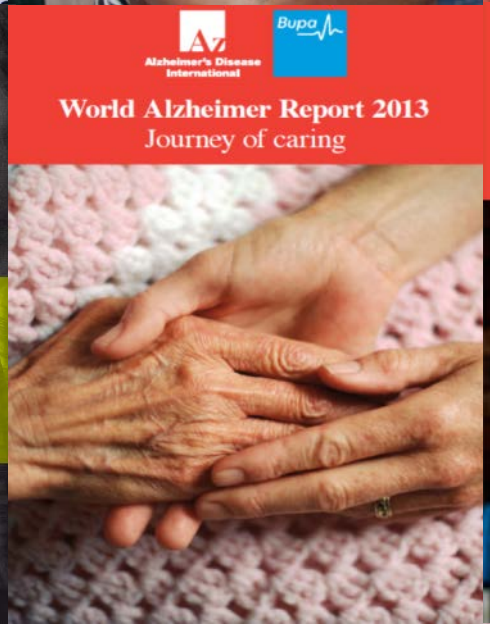

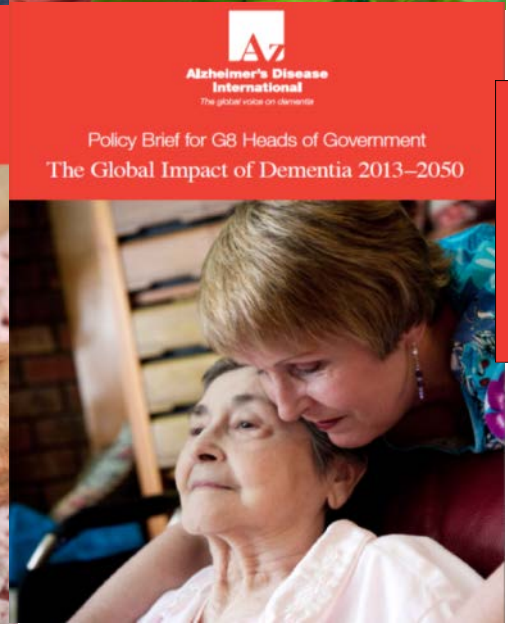

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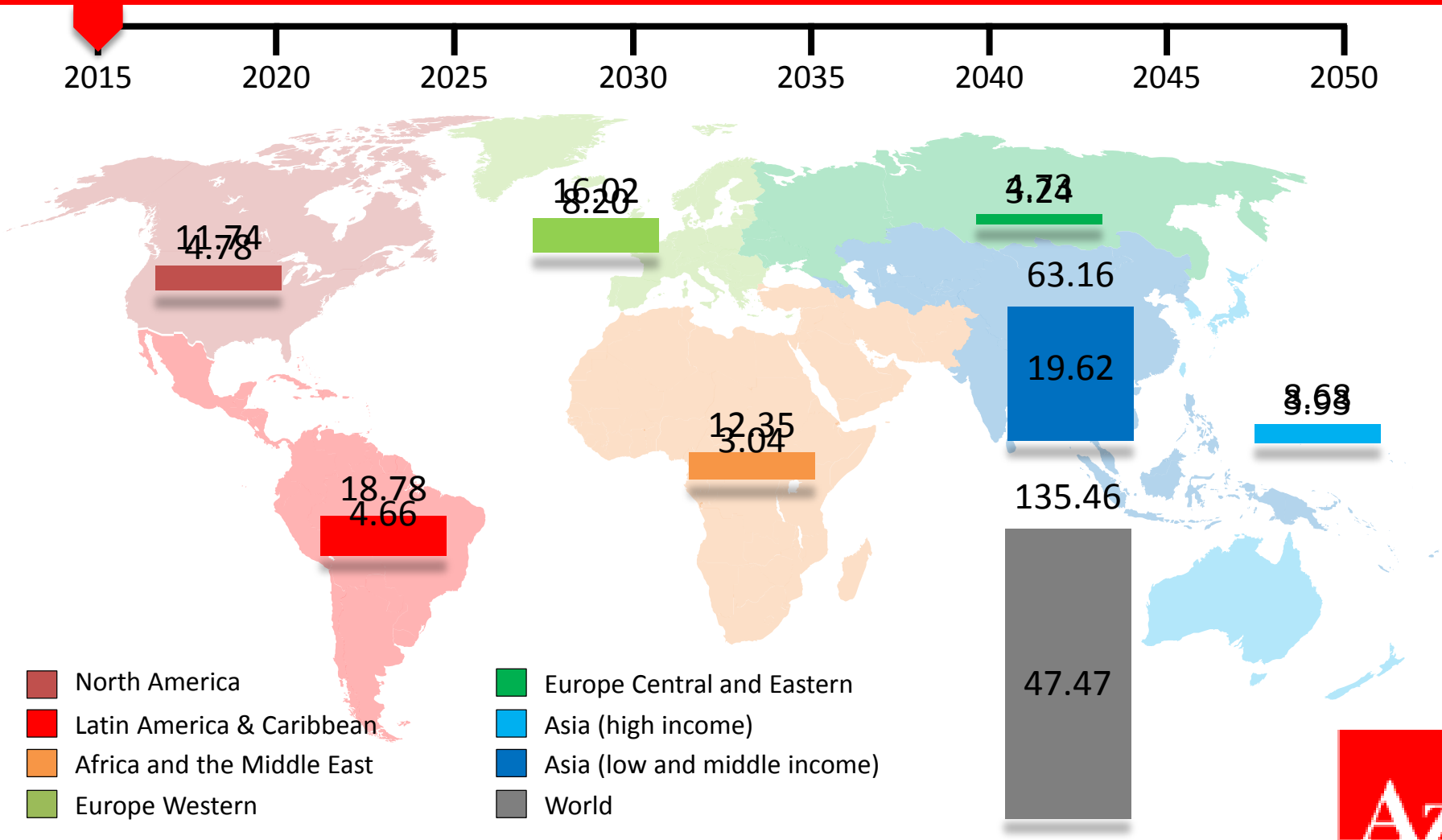
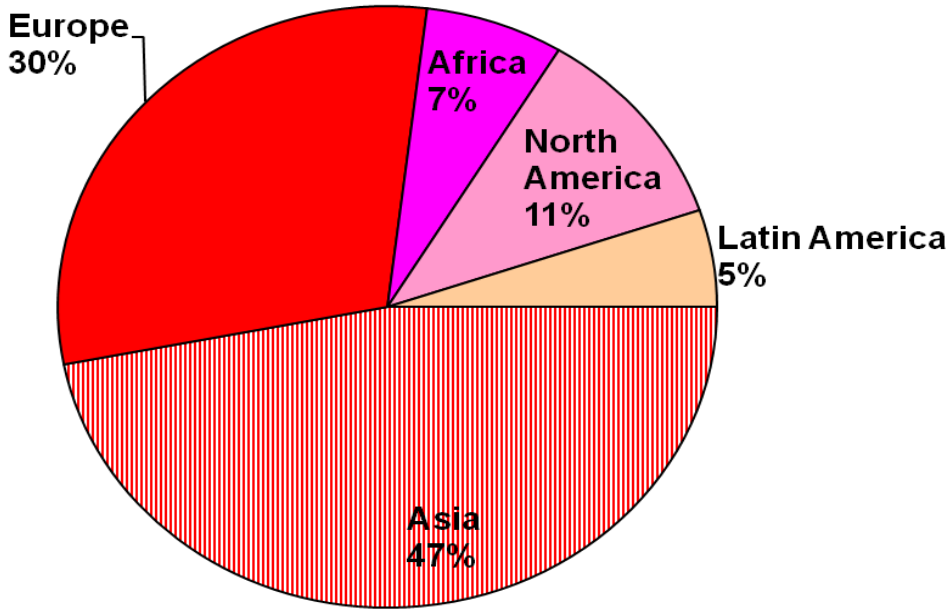
Why is risk reduction important?

Numbers of people with dementia by world region (2015-2050)



Global Distribution of Incident Dementia (7.7 million new cases per year)



One new case every 4 seconds!

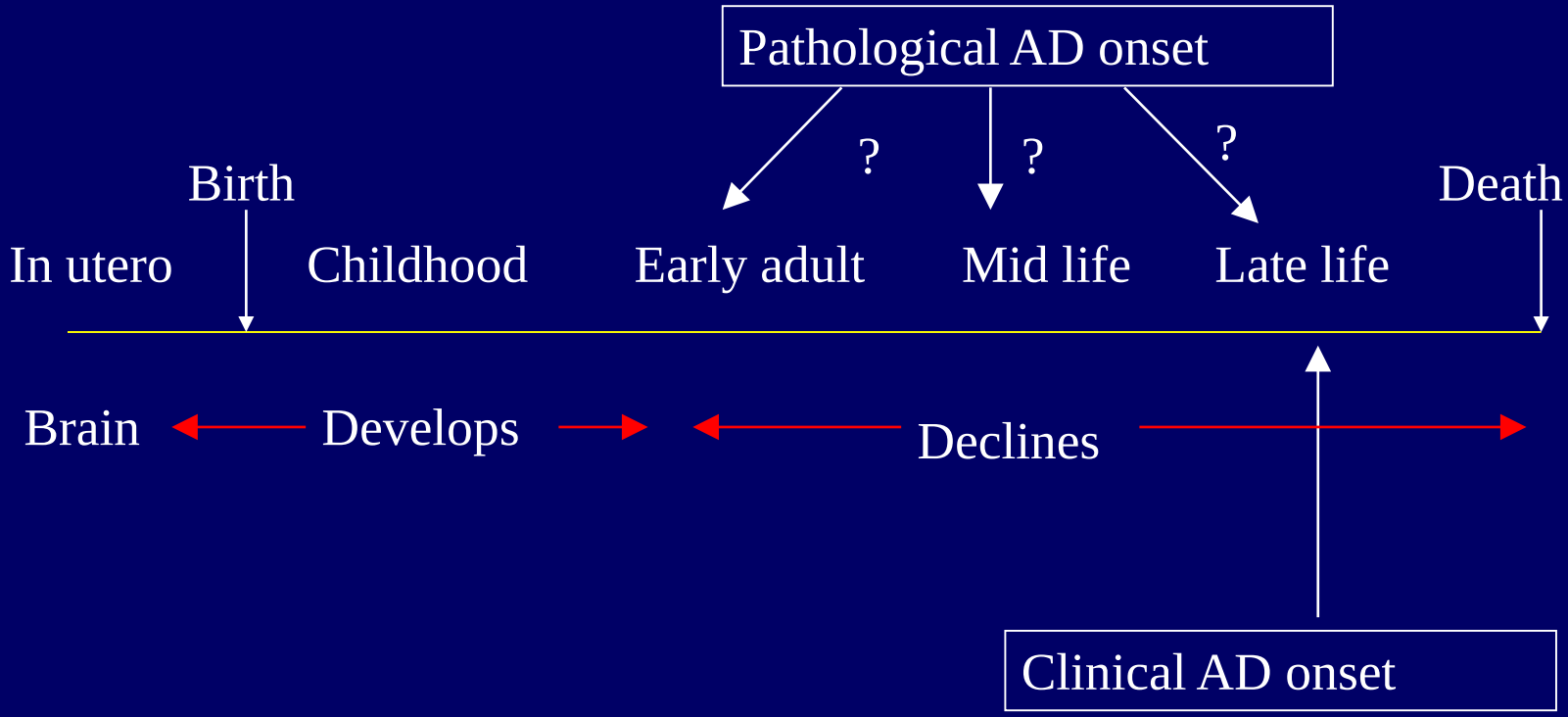
WHO Report 2012 – Dementia a Public Health Priority

Background – concept and methods

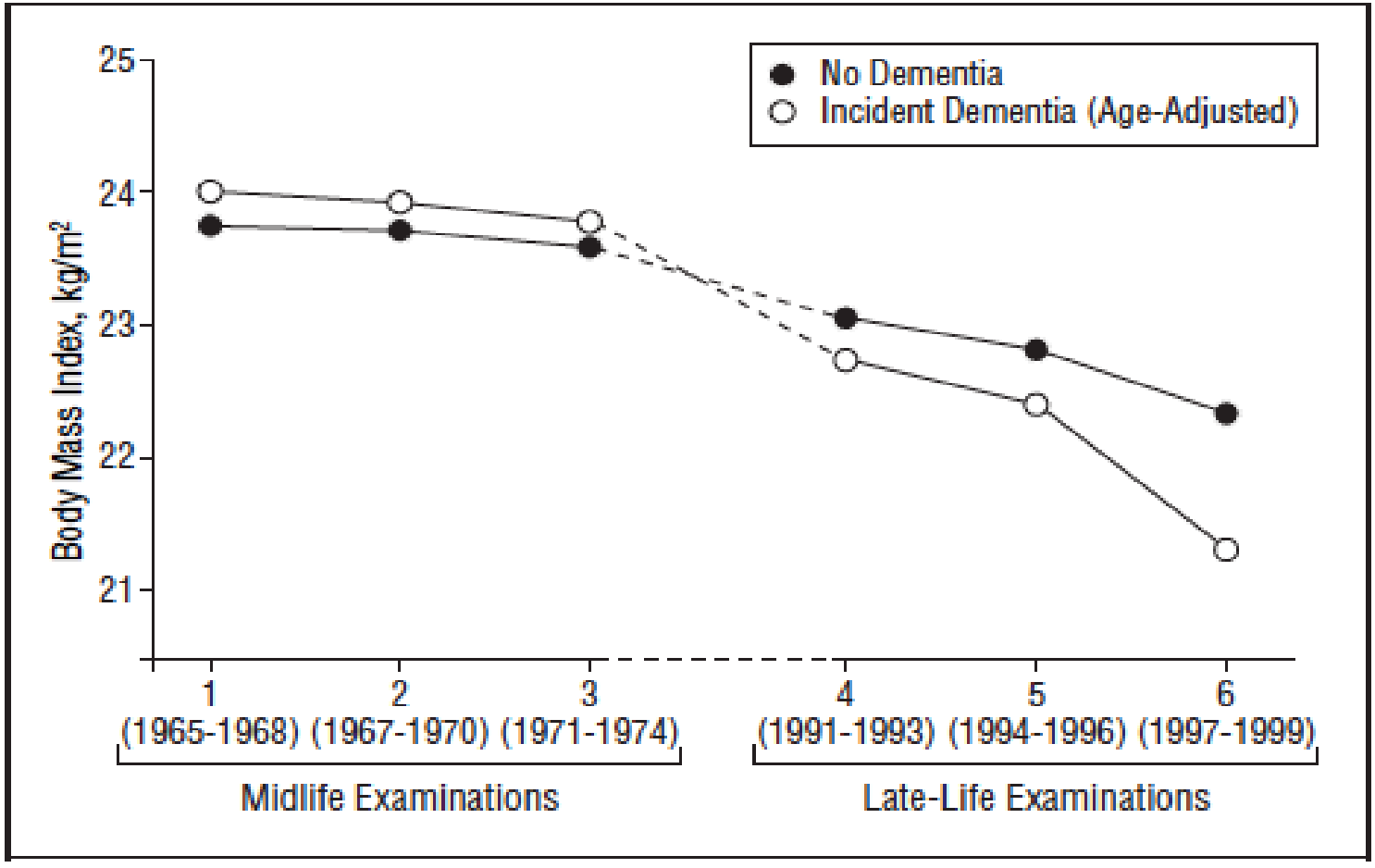
Risk factors and causes

- If A is associated with B, this does not demonstrate that A causes B
  - Chance
  - Bias
  - Confounding
  - Reverse causality
- Sources of evidence
  - Longitudinal cohort studies (bias and reverse causality)
  - Randomised controlled trials (confounding)
  - Systematic reviews and meta-analyses (consistency)
  - Biological studies (mechanisms)

A lifecourse perspective



Changes in body mass index from mid to late-life for those with and without late-life dementia onset



Stewart et al. *Arch Neurol.* 2005

What did we do?

- Determined the scope
- Appointed review groups

- Identified reviews
- Read all the papers
- Updated the search
- Critically appraised the evidence
- Considered need for new systematic review/ meta-analysis
- Summarised the evidence – consistency/ strength

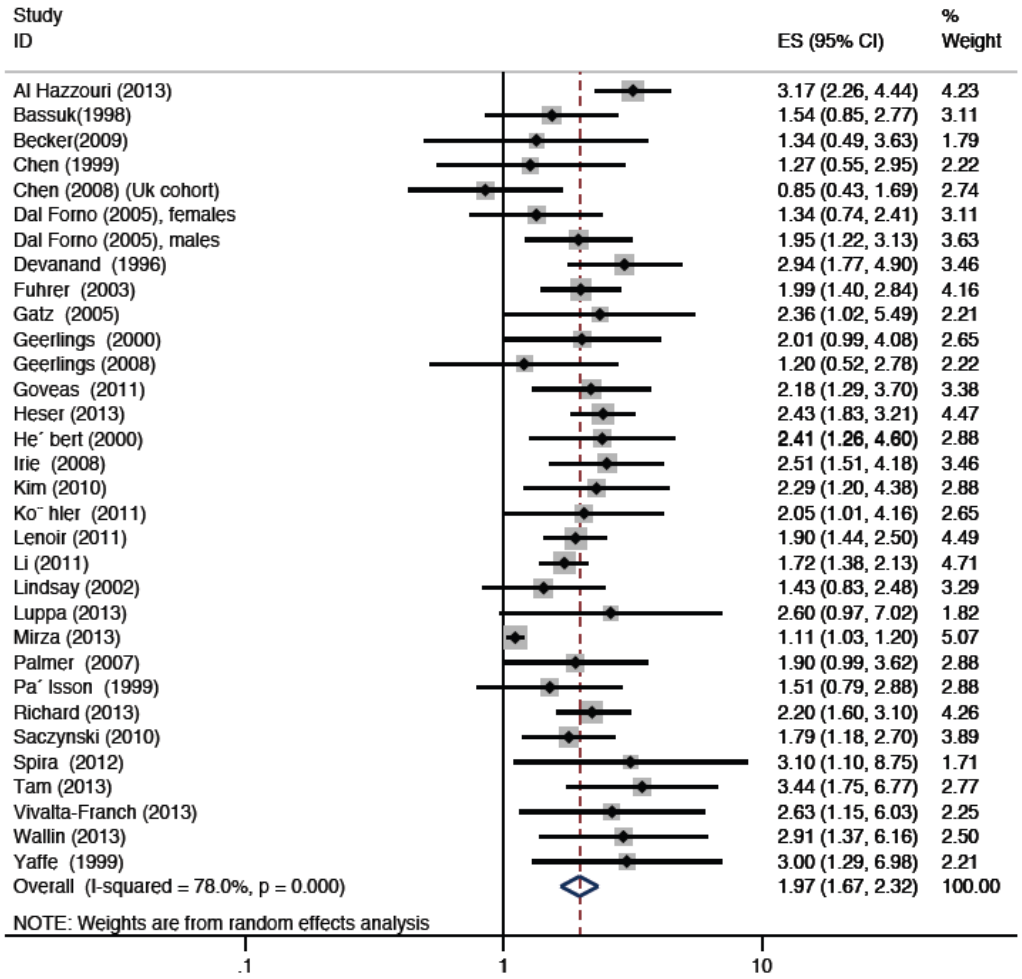
Domains (lifecourse)

- Developmental and early-life factors
- Psychological factors
- Lifestyle
- Cardiovascular risk factors

Key findings

Figure 3.1

Meta analysis for the unadjusted effect of depression on the risk of incident dementia



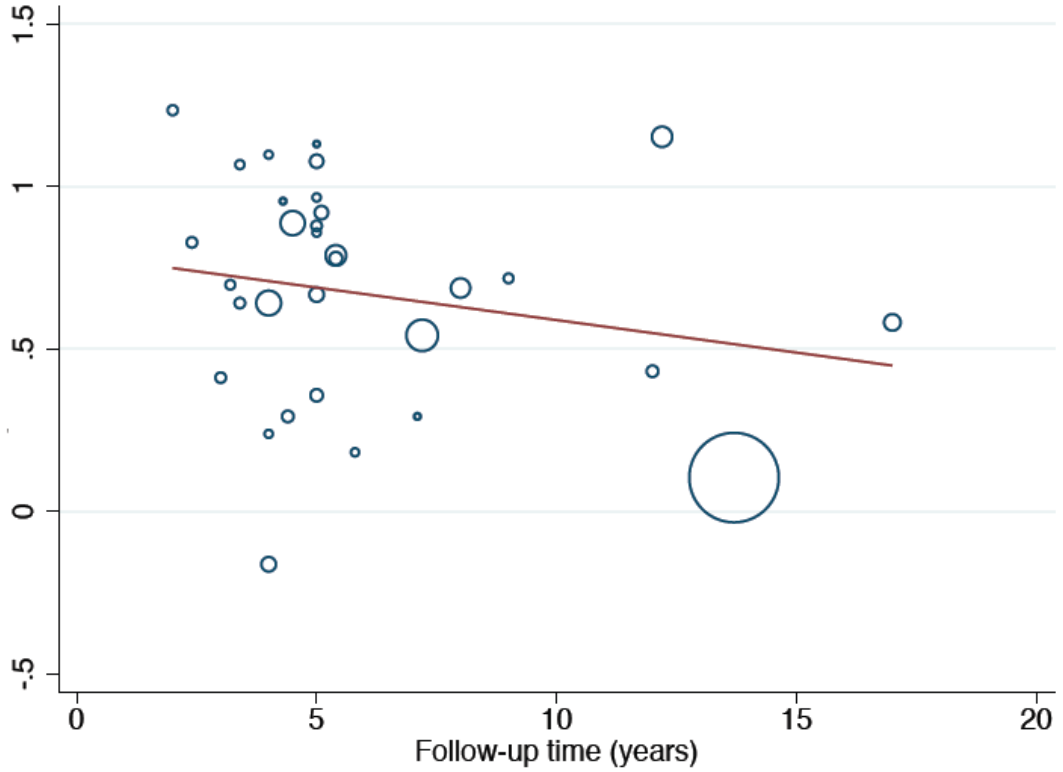
RR 1.97 (1.67-2.32)
Heterogeneity 78%

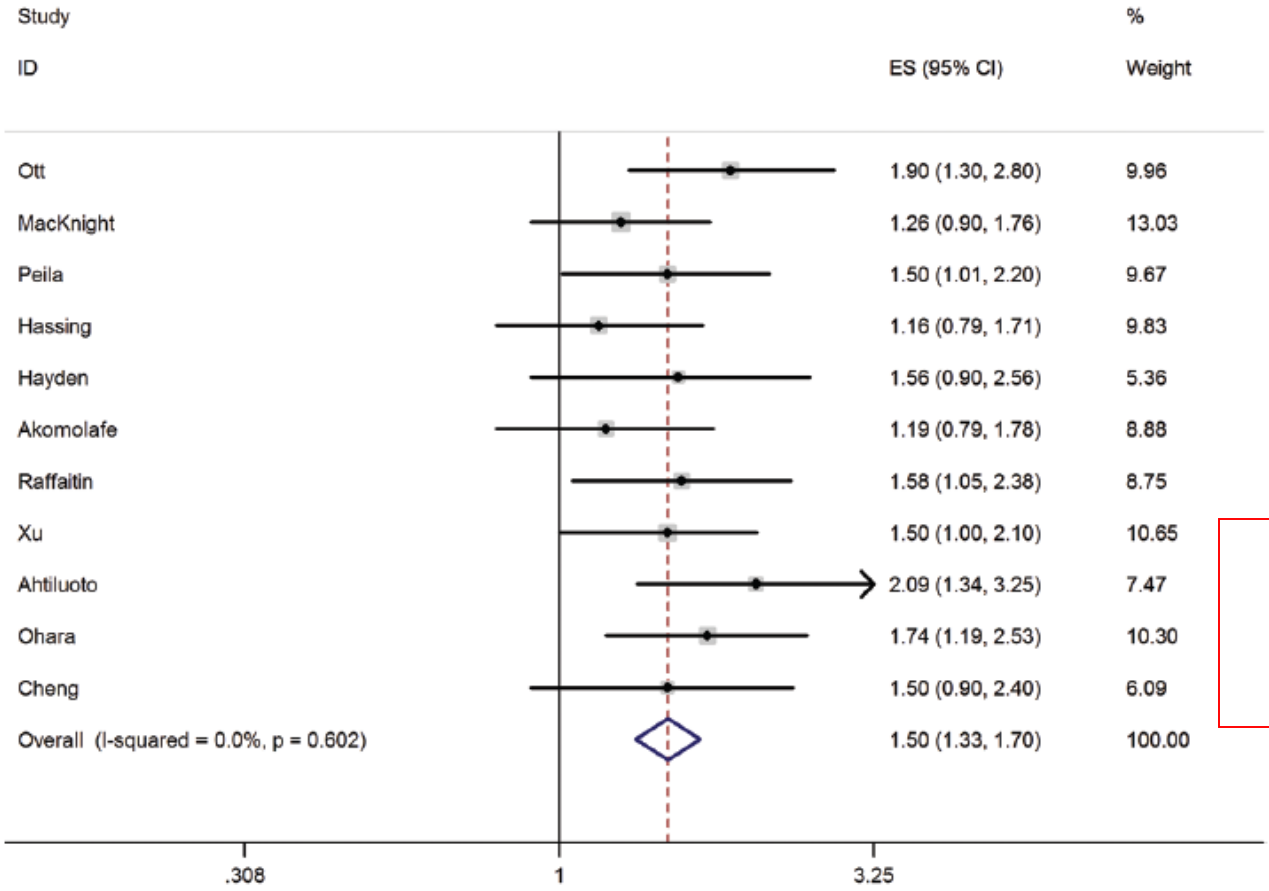
Reverse causality?

(Bigger effect of depression with shorter follow-up periods)

Figure 3.2

Meta regression exploring the effect of length of follow-up on the risk of incident dementia





RR 1.50 (1.33-1.70)
Heterogeneity 0%

Figure 5.1

Forest plot for the association of diabetes in late-life with the incidence of any dementia (AnyDem)

Robust findings

Exposure	Period
Education	**Early life**
Hypertension	**Midlife**
Diabetes	**Mid- to late-life**
Smoking	**Mid- to late-life**

Mechanisms

- Cognitive/ brain reserve (education)
- Vascular disease (hypertension, smoking, diabetes)
  - Additive effect in combination with AD pathology?
  - Interactive effect promoting AD pathology?
  - Other (non-vascular) effects on AD pathology?

What have we achieved?

- We started with a long list of potential risk factors
- We have reduced these to just four where the evidence is strongest
- This does not mean that other factors may not also be modifiable risk factors
  - Less consistent evidence
  - Insufficiently studied
  - No/ few long-term cohort studies (reverse causality)
  - Confounding or bias likely explanations
  - Need for RCTs where feasible

Future Research

- Dementia as an outcome
- Systematic reviews and meta-analyses
  - More collaboration using primary data
  - Standardisation (harmonisation)
  - Quality control (!)
  - Open source documentation
- RCTs in late-life
  - Diabetes (glycemic) control
  - Physical activity
  - Cognitive stimulation
  - Micronutrient deficiency
  - Complex interventions for at risk groups (www.edpi.org)
- Monitoring the course of the epidemic