Cognitive decline, dementia and frailty are major consequences of the ageing population - presenting challenges to policy makers and service providers around planning and providing for the needs of older people.

The MRC Cognitive Function and Ageing Study (MRC CFAS) began in the late 1980s with the initial aim of investigating dementia and cognitive decline in a representative sample of 18,500 people over the age of 65 years. Fieldwork ran until 1994.

Effective care planning for the ageing population needs to recognise factors around diversity and inequality and is dependent on contemporary information and understanding about health status and risk factors in the total older population. However the data from MRC CFAS is now decades old - leading to the daughter study, CFAS II.

The longitudinal CFAS II study was built on the design and infrastructure of the MRC CFAS collaborative – maintaining a similar methodology to assess a sample population across three of the six geographical areas used in MRC CFAS.

CFAS II aimed to assess and update the body of knowledge around the generational nature of dementia and ascertain whether it has changed - answering the question: Age for age, has dementia become more or less common for a given age or sex.

Despite the prediction of significant increases in the number of people being diagnosed with dementia, CFAS II is the first multi-area study globally to have been designed from its outset to compare prevalence and incidence.

Summary

CFAS II investigators collected data from three MRC CFAS sites (Cambridgeshire, Newcastle and Nottingham) to enable geographical and generational comparisons to be made with the baseline data from these sites (called CFAS I).

Investigators interviewed 7,796 older people aged 65 and over, recruited through GP and CCG datasets. The sample group was stratified by age, with similar age distributions present across both cohorts (CFAS I and II).

Initial interviews took place after written, informed consent had been obtained and completed in community settings or in care homes. Investigators collected data around sociodemographics, health and wellbeing, lifestyle and social engagement, and self-reported ability to undertake daily living activities. Cognitive testing was also undertaken and risk factors around healthy ageing identified.

The first set of interviews focused on establishing dementia prevalence (the number of cases present in a particular population at a given time). Participants were followed up two years later - with subsequent interviews determining incidence (new occurrence of dementia). The two data sets allowed the research team to examine dementia risk factors and whether they have changed across time and different generations.

A random selection of the sample were asked if the researchers could speak to an informant (i.e. a family member), to gain an alternative perspective on how the person is ageing.
NIHR involvement

Accepted on to the NIHR Clinical Research Network (CRN) portfolio of studies, the CRN provided contingency support to the investigators - including provision of resources and financial support around the cost of recruiting and interviewing participants over a period of three years.

The study received support from NIHR CRNs in West Anglia (now Eastern CRN) and Trent (now East Midlands CRN), and the Dementias and Neurodegenerative Disease Research Network in Newcastle.

Results

The study provided valuable data around a number of important areas related to cognitive function and ageing - including incidence and prevalence of dementia, dementia risk, cognitive impairment, healthy life expectancy, social isolation, disability, mortality and frailty.

The investigators found that cognitive function had improved in men and women. Dementia prevalence had reduced since the baseline data was taken, indicating that dementia has become less common, age for age. CFAS I (three of the original MRC CFAS sites chosen for CFAS II) estimated 7.5% prevalence, and CFAS II estimated 6.4% - a decrease of 1.8%.

Researchers also found that dementia incidence had reduced significantly between the two cohorts, by 20%.

This suggests that although improved diagnostic methods are identifying more people with dementia, measures which improve health such as education, health promotion and attention to diet and exercise may be driving a reduction in risk at each age.

The first cohort had shorter life expectancies than the second, but healthy life expectancies were more complex. Compression of morbidity for cognitive impairment had occurred across generations for both sexes; whereas mild impairments in day to day activities had expanded. There were also significant increases in years lived over age 65 with low dependency for men and women (28.7% in 1991 vs. 32.4% in 2011), along with a smaller increase in those with high dependency (3.9% vs. 5.9%).

Investigators found that inequalities play an important role in healthy ageing, with people from deprived backgrounds having shorter life expectancies and greater risk of cognitive impairment while ageing.

Impact and value to the NHS

The findings provide valuable new information and data for governments and care providers - including the NHS, local authorities and Public Health England (PHE) - to plan resources and funding required for the care of ageing populations more effectively.

Estimates of dementia prevalence from CFAS II are now used by NHS England and CCGs as part of their primary care work. The study has helped inform where and to what extent services are deployed around the country to support people; including funding for services.

The study led to a National Institute for Health and Care Excellence review of mid-life dementia approaches to delay or prevent onset of dementia; and to PHE developing policies around dementia risk prevention.

The data was also used by Alzheimer’s Society within their Dementia UK: Update (2014) and in Dementia research roadmap for prevention, diagnosis, intervention and care by 2025.

Ultimately the study has provided valuable evidence which is shaping ways of thinking around dementia risk being modifiable and how best to optimise brain health across a person’s life course.

Key publications:

- Study site: www.cfas.ac.uk
- Publication details:
  - Nature Communications - A two decade incidence comparison from CFAS I and II. https://go.nature.com/2vQgjX5