



**Application number/Title:** 32048 - Lifespan Changes in Brain and Cognition- Identifying risk and protective factors

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**Applicant institution:** University of Oslo (Norway)

**Keywords provided by the Applicant PI to describe the research project:**  
Ageing, brain, cognition, health, lifestyle, mri

**Application Lay Summary:**

We aim to investigate factors that relate to brain health in midlife and older age.

Overall research questions:

Do factors such as cardiovascular health, lifestyle, mental health, social support, sociodemographics and early life, relate to structural and functional brain characteristics?

Are these relationships specific to ageing, or are they general to the adult lifespan?

By utilising the statistical power of the Biobank data in combination with the longitudinal nature of our ongoing studies, we aim to identify groups of individuals who are vulnerable to poorer brain health or accelerated decline in brain characteristics with advancing age.

Our research will contribute to the overall knowledge of factors that influence brain health across the adult lifespan, which is important for both the facilitation of preventive interventions and the identification of risk factors associated with diagnosis of diseases such as dementia. The research may have implications on an individual, national and global level, by promoting mental health and wellbeing, longer lasting function, and a reduced cost of health care. The research will be undertaken by analysing structural and functional MRI images in relation to factors such as cardiovascular health, lifestyle, mental health, social support, sociodemographics and early life factors. The analyses will be performed using the neuroimaging software packages FSL (<http://www.fmrib.ox.ac.uk/fsl/>) and

Freesurfer (<https://surfer.nmr.mgh.harvard.edu/>). We will include all participants who have completed Magnetic Resonance Imaging scans of the brain.