

Cognitive stimulation at work may reduce dementia risk

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PEOPLE WHO WORK IN COGNITIVELY STIMULATING JOBS ARE AT LOWER RISK OF DEMENTIA THAN those who work in non-stimulating jobs, a large multicohort study has found.¹

Data were obtained from seven European cohort studies. Participants were free of dementia at baseline (1986-2002) and were followed up until the end of 2017. Job demands and job control were assessed by questionnaire in 1991-3 and blood samples for plasma protein analysis taken in 1997-9. Dementia diagnoses were obtained from hospital records and death registries.

The contributing studies used one of two standardised, widely used questionnaires to measure psychological demands and decision latitude (control) at work.² Decision latitude is a composite measure of autonomy in decision-making and the range of skills required at work. Mean response scores for job demand items and decision latitude (control) items were obtained for each participant and scores above and below the study-specific median score were categorised as high and low respectively.

Karasek's Job Demands and Control model classifies jobs into four categories: active (high demands, high control), passive (low demands, low control), high-strain (high demands, low control) and low-strain (low demands, high control).³ High-strain jobs are associated with burnout, depression⁴ and CHD,⁵ whereas active jobs provide motivation, encourage learning and foster resilience.³ In the present study, the Karasek categories were used to define three levels of cognitive stimulation: high (active jobs), medium (high- or low-strain jobs) and low (passive jobs).

A total of 107,896 participants (42% men) were included in the analysis. Mean age at baseline was 44.6 years. After a mean follow-up period of 16.7 years 1,143 participants were diagnosed with dementia.

Compared with those with low cognitive stimulation at work, those with high cognitive stimulation were less likely to develop dementia; age and sex adjusted hazard ratio (HR) 0.77 (95% CI: 0.65-0.92). This association remained significant after adjustment for lifestyle, sociodemographic, and cardiometabolic risk factors; HR 0.82 (95% CI: 0.68-0.98). There was no association between medium vs low cognitive stimulation and dementia risk.

To eliminate the possibility of reverse causation

(preclinical or prodromal dementia could influence participants' questionnaire responses), the comparative risk of dementia was calculated separately for the first 10 years of follow-up; HR 0.60 (95% CI: 0.37-0.95) and from year 10 onwards; HR 0.79 (95% CI: 0.66-0.95).

An analysis which controlled for multiple testing found that the high stimulation participants had significantly lower levels of three plasma proteins which inhibit CNS axonogenesis and synaptogenesis.

A problem with using the Karasek categories as proxies for cognitive stimulation is that it is difficult to disentangle the benefits of intellectual stimulation at work from the harmful effects of job strain. There is evidence that job strain is associated with an accelerated rate of cognitive decline prior to retirement⁶

and growing evidence to suggest that chronic stress may raise dementia risk e.g. the doubling of dementia risk in veterans with PTSD.⁷

As with any observational study, there is likely to be residual confounding e.g. by income.

Previous studies of the association between midlife and late-life cognitive stimulation and dementia have produced inconclusive findings. The Whitehall II study found an acceleration of verbal memory decline after retirement but no significant impact on other cognitive domains;⁸ participation in mentally stimulating leisure activities at a mean age of 56 did not lower dementia risk.⁹ Studies of computerised cognitive training programmes have mostly been of poor quality and doubtful clinical relevance.¹⁰

'It is difficult to disentangle the benefits of intellectual stimulation at work from the harmful effects of job strain'

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