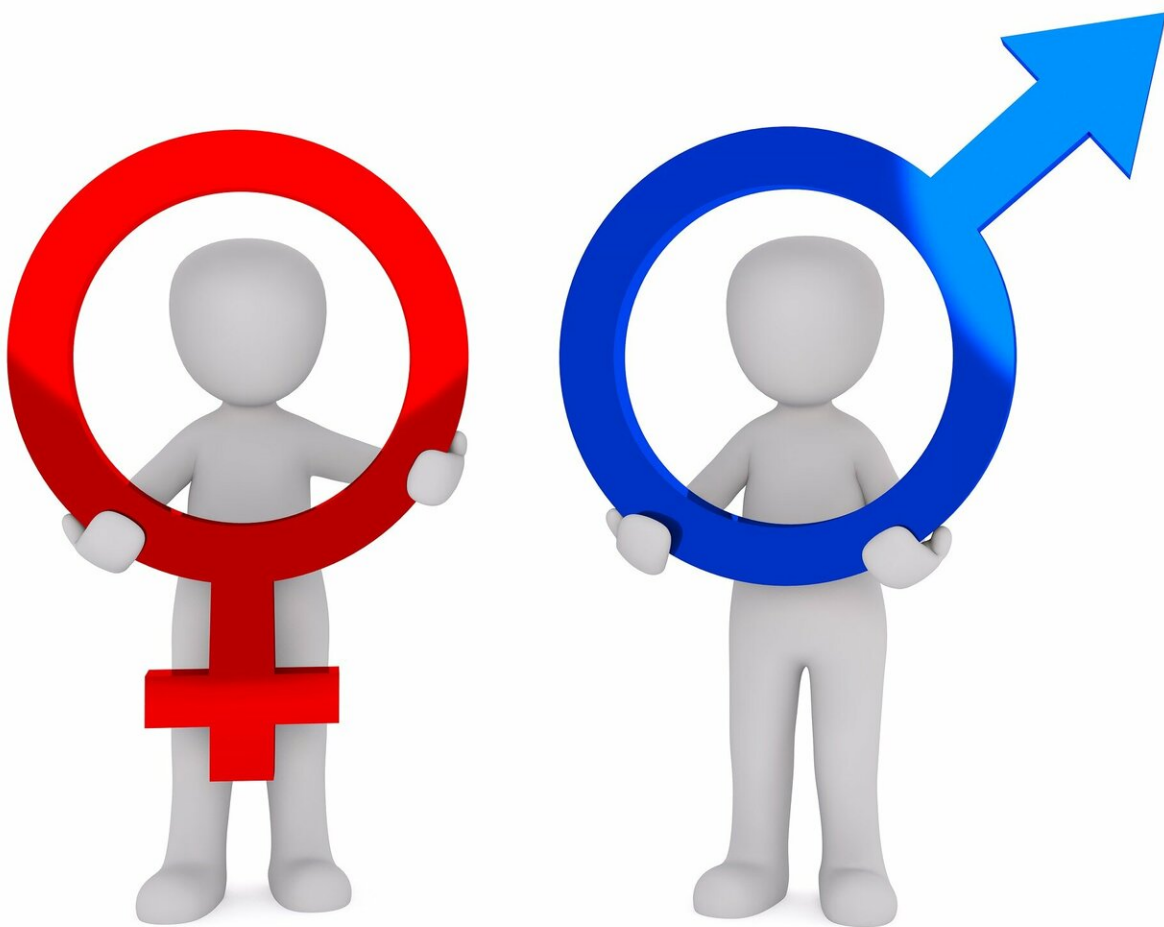


Education inequalities linked to increased cognitive aging in women

February 1 2021



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Improvements in access to education for girls over the last century in the UK are likely to have reduced differences in cognitive aging between men and women, potentially reducing sex disparities in dementia risk, finds a new large cohort study led by UCL.

Though previous research indicates women are at higher risk of [dementia](#) than men, the study, published today in *The Lancet Public Health*, found that historical inequalities in levels of [education](#) were partially responsible for differences in cognitive aging between men and women, potentially contributing to sex disparities in dementia risk.

Using combined data from the English Longitudinal Study of Aging (ELSA) and the Whitehall II study, the researchers assessed the impact of education and [birth cohort](#) on differences in both 'memory' and 'fluency' trajectories of 15,924 participants born between 1930 and 1955.

Memory was assessed by asking participants to memorize a list of words and then recall as many as possible within two minutes. Fluency was assessed by asking participants to list as many animals as possible within one minute.

Overall, the team found that women performed better than men on the memory test, with more marked differences found in women born more recently. Furthermore, women were also found to experience slower rates of memory decline than men.

Women were found to have poorer fluency scores than men in the older birth cohort, yet this difference progressively reversed in more recent

birth cohorts, with women born between 1946 and 1955 having better scores than their male counterparts. The researchers found that these changes could be partially explained by an increase in education level in women born later; whilst men were more likely than women to have high education level across all birth cohorts, women's [education level](#) increased with each successive birth cohort.

Given that poor performance on memory and fluency tests is strongly associated with dementia, the authors conclude that increases in [educational opportunities](#) driving improvements in midlife cognition for women may therefore reduce sex differences in dementia risk for future generations.

Carried out with researchers at the French National Institute of Health and Medical Research, the study is thought to be the first of its kind at this scale to comprehensively assess sex differences in cognitive outcomes that also examines the role of secular (long-term) changes in education.

Lead author, Ph.D. candidate Mikaela Bloomberg (UCL Department of Epidemiology and Public Health), said: "Our findings suggest that among people educated in the first half of the 20th century, gender inequalities in access to education led to lower education levels among women and this likely negatively impacted cognitive aging and therefore increased the risk of dementia for women. Our study suggests this might change in the future, as disparities in access to education decrease, highlighting the importance of equitable access to education for health, particularly in countries where access to education for women and girls is still limited."

Co-author, Dr. Séverine Sabia, (UCL Department of Epidemiology and Public Health) said: "We cannot definitively conclude at this stage that the differences in dementia risk between men and [women](#) will be

reduced, because we have only studied two components of cognitive function, and education is not the only factor that influences [dementia risk](#). However, the trend that emerges here suggests increases in access to higher levels of education could result in better cognitive aging and therefore a reduction in sex differences in risk of dementia in the future."

More information: Mikaela Bloomberg et al. Sex differences and the role of education in cognitive ageing: analysis of two UK-based prospective cohort studies, *The Lancet Public Health* (2021). [DOI: 10.1016/S2468-2667\(20\)30258-9](#)

Provided by University College London

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