Reducing poverty may reduce risk of developing dementia

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Credit: Riya Kumari from Pexels

Could reducing poverty go hand-in-hand with reducing the risk of developing dementia, the kind in which an elderly person shows signs of Alzheimer's disease but is cognitively healthy and autonomous?

The answer is yes, according to a meta-analysis by researchers at Université de Montréal's School of Public Health (EPSUM) and the Center intégré universitaire de santé et de services sociaux du Nord-de-l'île-de-Montréal (CIUSSS-NIM).

Led by Yulia Bodryzlova, a Ph.D. candidate at the EPSUM supervised by assistant professor Grégory Moullec, the researchers extracted data from 18 cohort studies of Alzheimer's patients done between 1991 and 2021, and coupled these data with social policy indicators of the Organization for Economic Co-operation and Development (OECD).

The findings were published in the *Journal of Aging & Social Policy* in an article titled "The potential of social policies in preventing dementia: an ecological study using systematic review and meta-analysis."

Lesions in the brain

Dementia is a general term used to describe a group of symptoms associated with a gradual loss of cognitive function severe enough to interfere with daily activities. The condition is a result of lesions in the brain most commonly caused by Alzheimer's.

The 18 studies included in the analysis provided data on life conditions, dementia status before death, and Alzheimer's pathology assessed by brain autopsy after death. The average age at death was 87, and each study provided brain pathology data for, on average, 109 people.

"The individuals' cognitive functioning had been tested at different stages of life, so we had information on their dementia status during life," said Bodryzlova. "We also had information on Alzheimer's pathological changes in the brain from autopsies performed after death."

The researchers then coupled the data for individuals who did not have

dementia, but whose brain tissue showed Alzheimer's, with social [policy](#) indicators in the countries where they lived: the United States, United Kingdom, Austria, Finland, the Netherlands, Norway and Switzerland.

No fewer than 12 OECD [social policy](#) indicators were used in the analysis, including total public social expenditures, public expenditures on old-age benefits, total health expenditures, and public expenditures on outpatient care (all as a percentage of GDP); the Gini index, an indicator of income equality; and several gender equality indicators.

The Gini index was particularly useful in establishing a link between social policies and their effect on the probability of developing dementia. It is a score between 0 and 1, where 0 corresponds to everyone in the population having the same income (perfect equality), and 1 corresponds to one person having all the income and everyone else none (perfect inequality).

"Canada, for example, has a Gini index of 0.3 and Brazil a Gini of 0.6," said Bodryzlova, who grew up in Kazakhstan. "The country with the most equitable income distribution is Slovakia, with a Gini of 0.24."

Same for men and women

The first finding of note: About 39% of those without dementia had moderate Alzheimer's, while 9% of those without dementia had advanced Alzheimer's. These percentages were the same for men and women, even though women account for two-thirds of all Alzheimer's cases in the general population.

Bodryzlova and her team found that lower levels of income inequality, lower poverty rate and higher expenditures on long-term care were significantly associated with a lower probability of dementia in people with AD.

Every 5% decrease in the Gini index of income inequality for people over age 65 translated into a 6% reduction in the likelihood of dementia in people with moderate Alzheimer's.

Similarly, a 1% reduction in the proportion of people with an income level under 50% of the median income was associated with a 1% reduction in the probability of dementia in people with Alzheimer's.

'Often overlooked'

Progressive social policies "can have repercussions all the way down to the cellular level because of their effects on reducing stress and fostering social inclusion," said Bodryzlova. "Yet the power of such policies to decrease dementia is often overlooked by policymakers and researchers."

Bodryzlova also believes that the World Health Organization's 2019 guidelines on risk reduction for cognitive decline and dementia are "useless at best, because interventions aimed at changing individual behavior over the long term are relatively ineffective and the development of new treatments is meeting with limited success."

In fact, she argued, "Focusing on interventions at the individual level can be harmful because it diverts scarce health care resources away from developing and implementing effective population-level interventions. Our results can help re-orient interventions designed to reduce the burden of dementia. What is needed is action on poverty, income inequality and more publicly funded health services."

Provided by University of Montreal

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