



## **Dementia may be prevented by better control of cardiovascular risk factors**

Hong Kong population is ageing. According to the Census and Statistics Department of HKSAR, the population of 60 year olds or above in Hong Kong is estimated to increase from 22.7% in 2016 to 35.1% in 2036<sup>1</sup>; it is believed that the demented population will grow along with the ageing population. Currently, dementia affects around 9% of Hong Kong elderly aged over 70. It is estimated that in 2036, there will be 230,000 community-dwelling senior citizens with dementia<sup>2</sup>. Studying the prevalence as well as the risk factors of dementia would help understand what we can do to alleviate the demented population.

The prevalence of dementia in a population is influenced by various factors such as life expectancy, education level, medical resources, and health profile. While the ageing population have raised the concern over the burden of dementia worldwide<sup>3</sup>, a recently published research on “Framingham Heart Study” suggested that dementia rate might be reduced with better management of cardiovascular risk factors<sup>4</sup>.

The Framingham Heart Study has monitored the vascular and cognitive conditions of registered residents from the Framingham area in Massachusetts since 1975. Using repetitive measures, the study used long period of surveillance to detect the presence of dementia. Aware of a possible bias that development in diagnostic criteria might affect the prevalence rate over time, the research team used the diagnostic guideline suggested by DSM-IV during screening, and revised all the old cases diagnosed before 2001 to keep old and new standards in-line. For the last three decades, participants free of dementia received standardized cognitive tests once every four years. The information of the vascular conditions and other disease risk factors were also collected.

The longitudinal study adopted a single cohort design. Tracking a sample that enrolled in the study in 1971, the study analyzed the health profile of those who reached 60 years of age. The sample involved 5,205 participants. Over the observation period, a trend of increasing mean age was observed, reflecting a climbing life expectancy. Despite the ageing population, the prevalence of dementia declined from 3.6% in the late 1970s and early 1980s to 2.0% in the late 2000s and early 2010s. However, statistic significance was only observed among people with an education level of high school diploma or above.

Two trends of demographic change paralleled the decline in dementia rate. First, there was a continuous increase in education level. From the late 1990s onwards, the majority of participants had obtained a high school diploma. Second, although the prevalence of Type II



diabetes and obesity increased, all other factors related to vascular health had improved during the years, including smoking habit, cholesterol and blood pressure level, and the use of antihypertensive medication. The two trends were found to be associated with the prevalence rate of dementia. The decline in dementia incidence was only observed among people who had a high school diploma. What's more, only people with such education level had an improvement in cardiovascular health. It was suggested that better education and management in vascular risk factors would contribute to the decline in dementia prevalence.

Although the sample of the Framingham Heart Study was limited to residents from the specific geographic area, the association showed between cardiovascular health, education, and dementia echoed the findings of longitudinal studies that had estimated dementia prevalence based on survey data from the Netherlands<sup>5</sup>, Sweden<sup>6</sup>, the UK<sup>7</sup>, and Spain<sup>8</sup>. The increase in average life expectancy is increasing the number and proportion of older people, therefore, despite the probable reduction in the rate of dementia among those with a higher education level, the growth in total incidence is likely to be a burden<sup>9</sup>. Researchers of the Framingham Heart Study highlighted the need for disease prevention, especially among economically vulnerable persons, elderly persons in high-income countries, and persons in low-to-middle-income countries. It was believed that by improving cardiovascular risk factors and enhancing the treatment of heart disease and stroke, some cases of dementia might be delayed or even prevented<sup>4</sup>.

## References

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