

# Epidemiological study of Dementia in China, Japan, America and Europe



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## Abstract

**Objectives:** The goal of this study was to summarize epidemiological studies of dementia in China, Japan, America and Europe, and to make comparison of the prevalence rate and risk factors in these countries to analyze differences among them.

**Methods:** Electronic databases including PUBMED, EMBASE, WEB OF SCIENCE, CNKI, CBM, VIP and WANGFANG are searched for relevant articles about epidemiological study of dementia.

**Results:** From 2000 to 2005, the prevalence of dementia was 5.15% in China, 15% in Japan and 4%-8% in Europe. Risk factors of dementia are different among countries as age, gender, education and other factors.

**Conclusion:** Gender and education are two of most important risk factors of dementia.

**Keywords:** Dementia; Alzheimer's Disease; Prevalence; Risk Factors; Epidemiology

## Introduction

Dementia is one of the main disorders associated with disability, institutionalization, and mortality among elderly individuals [1]. This disease is caused by damage to neurons in the brain. This, in turn, can lead to changes in one's memory, behavior, and ability to think clearly. China encompasses a very large geographical area and a widely diversified population comprising many different ethnic, cultural, and socioeconomic aspects [2]. With the accelerated aging trend of the Chinese population (the latest statistics indicate that the population aged 65 and above has reached 10.47% [3]), we need to better characterize the overall epidemiologic profile of dementia in China, and we also wished to make comparison with developed

countries like Japan, America and Europe by analyzing the differences between them in this regard.

### Comparisons of Prevalence of Dementia among Countries

One study used Meta-analysis to investigate the prevalence of dementia in the elderly aged  $\geq 65$  years in China from 2000 to 2015 and it turned out to be 5.15% [4]. The overall prevalence of dementia in western developed countries has been reported to be approximately 4% to 8% among people aged 65 years and older [5,6], and this figure turned out to be 15% in Japan [7]. Globally, the preva-

lence of dementia has been shown to vary across countries likely due in part to differences in demographics, education and genetics.

### Comparisons of Risk Factors among Countries

Many published studies believe that dementia, like other common chronic diseases, develops as a result of multiple factors rather than a single cause.

**a) Age:** The greatest risk factor for dementia is advanced age. The prevalence rate increased progressively with age in 5-year intervals, reaching 64.4% for individuals aged 85 years and older. The number of new cases of AD also increases dramatically with age in America [8], there will be approximately 59,000 new cases among people aged 65 to 74 years, 172,000 new cases among people aged 75 to 84 years, and 238,000 new cases among people aged 85 years and older. In Europe, after 65 years of age, both the prevalence and the incidence of dementia double approximately every 5-6 years until age 90, and ~30% of people aged  $\geq 85$  years might be affected. In addition, ~80% of dementia cases occur in people aged  $\geq 75$  years [9]. In China, the prevalence of dementia increased from 1.01% to 23.60 in people aged 60-64 years to aged  $\geq 85$  years [4].

**b) Gender:** The studies from the three countries suggest that more women than men have AD and other dementias. In China, the prevalence of dementia was higher in women (6.08%) than in men (4.10%), and it increased significantly with age [4]. The observation that more women than men have AD and other dementias is primarily explained by the fact that women live longer, on average, than men, and older age is the greatest risk factor for AD [10]. Based on estimates from AD-AMS, among people aged 71 years and older, 16% of women have AD and other dementias compared with 11% of men in the United States [11]. In Europe, prevalence was also higher in women than in men [9].

**c) Education and other Factors:** People with fewer years of formal education are at higher risk for AD and other dementias than those with more years of formal education [12]. And for health conditions, the other possible explanation of the increasing trend in overall dementia could be a shift in health conditions among the elderly, including smoking, obesity (especially in midlife), diabetes, high cholesterol and hypertension in midlife. Regional variability is another important factor, so statistical comparisons of urban-rural, northern-southern, and eastern-western differences are needed to consider, especially in large countries like China and America.

### Discussion

In all studies we have collected, aging was found to be the most important risk factor. With the accelerated aging trend of the Chinese population, the prevalence almost doubles with every 10-year increase in age, especially for AD. By the anticipated increase in the numbers with the disease, and the corresponding increase in the financial and caregiver burden over the coming years, more attention should be paid to it and healthcare should also be improved includ-

ing bolstering care giving responsibility, medical infrastructure and increasing government investment, insurance and subsidies.

Education is another risk factor and possible explanations for the higher prevalence of dementia among women than men is the longer life expectancies among women and the greater level of educational attainment among men than women, which differs from those in western world. To learn from the developed countries, China should increase investment in education as well as eliminating illiteracy, especially in underlining the importance of elimination of prejudice against women in rural areas; let more rural and mountainous areas of children can be educated.

Regional variability may also an important factor. In order to improve the quality of life of the elderly with dementia, especially in rural areas, we should narrow the gap between urban and rural areas and try to average allocation of medical resources. Comparing with developed countries, economic conditions, living standards, and medical standards should be further improved in rural areas and the whole country, although China is already allocating more resources to areas such as pensions, health care and education.

### Conclusion

In this review, the Meta-analysis suggested that gender and education are two of most important risk factors of dementia.

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