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Featured Article

The cost of Alzheimer's disease in China and re-estimation of costs worldwide

Jianping Jia[a,b,c,d,e,*], Cuibai Wei[a,*], Shuoqi Chen[a], Fangyu Li[a], Yi Tang[a], Wei Qin[a], Lina Zhao[a], Hongmei Jin[a], Hui Xu[a], Fen Wang[a], Aihong Zhou[a], Xiumei Zuo[a], Liyong Wu[a], Ying Han[a], Yue Han[a], Liyuan Huang[a], Qi Wang[a], Dan Li[a], Changbiao Chu[a], Lu Shi[a], Min Gong[a], Yifeng Du[f], Jiewen Zhang[g], Junjian Zhang[h], Chunkui Zhou[i], Jihui Lv[j], Yang Lv[k], Haiqun Xie[l], Yong Ji[m], Fang Li[n], Enyan Yu[o], Benyan Luo[p], Yanjiang Wang[q], Shanshan Yang[r], Qiumin Qu[s], Qihao Guo[t], Furu Liang[u], Jintao Zhang[v], Lan Tan[w], Lu Shen[x], Kunnan Zhang[y], Jinbiao Zhang[z], Dantao Peng[aa], Muni Tang[ab], Peiyuan Lv[ac], Boyan Fang[ad], Lan Chu[ae], Longfei Jia[af], Serge Gauthier[ag,*]

[a]*Department of Neurology, Xuan Wu Hospital, Capital Medical University, Beijing, China*
[b]*Beijing Key Laboratory of Geriatric Cognitive Disorders, Beijing, China*
[c]*Center of Alzheimer's Disease, Beijing Institute for Brain Disorders, Beijing, China*
[d]*Key Laboratory of Neurodegenerative Diseases, Ministry of Education, Beijing, China*
[e]*National Clinical Research Center for Geriatric Disorders, Beijing, China*
[f]*Department of Neurology, Shandong Provincial Hospital, Shandong University, Jinan, China*
[g]*Department of Neurology, Henan Provincial People's Hospital, Zhengzhou, China*
[h]*Department of Neurology, Zhongnan Hospital of Wuhan University, Wuhan, China*
[i]*Department of Neurology, The First Teaching Hospital of Jilin University, Changchun, China*
[j]*Dementia Unit, Beijing Geriatric Hospital, Beijing, China*
[k]*Department of Geriatrics, The First Affiliated Hospital of Chongqing Medical University, Chongqing, China*
[l]*Department of Neurology, Affiliated Foshan Hospital of Sun Yat-sen University, Foshan, China*
[m]*Department of Neurology, Tianjin Huanhu Hospital, Tianjin, China*
[n]*Department of Gerontology, Fuxing Hospital, Capital Medical University, Beijing, China*
[o]*Department of Psychiatry, Zhejiang Provincial People's Hospital, Hangzhou, China*
[p]*Department of Neurology, The First Affiliated Hospital of Zhejiang University, Hangzhou, China*
[q]*Department of Neurology, Daping Hospital, Third Military Medical University, Chongqing, China*
[r]*Department of Neurology, Daqing Oilfield General Hospital, Daqing, China*
[s]*Department of Neurology, The First Affiliated Hospital of Xi'an Jiaotong University, Xi'an, China*
[t]*Department of Neurology and Institute of Neurology, Huashan Hospital Fudan University, Shanghai, China*
[u]*Department of Neurology, Baotou Central Hospital, Baotou, China*
[v]*Department of Neurology, The 88th Hospital of PLA, Taian, China*
[w]*Department of Neurology, Qingdao Municipal Hospital, School of Medicine, Qingdao University, Qingdao, China*
[x]*Department of Neurology, Xiangya Hospital Central South University, Changsha, China*
[y]*Department of Neurology, People's Hospital of Jiangxi Province, Nanchang, China*
[z]*Department of Neurology, Weihai Municipal Hospital, Weihai, China*
[aa]*Department of Neurology, Center for Geriatric Medicine, China-Japan Friendship Hospital, Beijing, China*
[ab]*Department of Geriatric Psychiatric, Guangzhou Huiai Hospital, Guangzhou, China*
[ac]*Department of Neurology, Hebei General Hospital, Shijiazhuang, China*
[ad]*Department of Neurology, Beijing Rehabilitation Hospital Affiliated to Capital Medical University, Beijing, China*
[ae]*Department of Neurology, The Affiliated Hospital of Guizhou Medical University, Guiyang, China*

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*Corresponding author. Tel.: +86 10 83199449; Fax: +86 10 83171070.
E-mail address: jjp@ccmu.edu.cn (J.J.), chuibainews@126.com (C.W.), serge.gauthier@mcgill.ca (S.G.)

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[af]Department of Neurology, Henry Ford Hospital, Detroit, MI, USA
[ag]McGill Centre for Studies in Aging, McGill University, Montreal, Canada

Abstract

Introduction: The socioeconomic costs of Alzheimer's disease (AD) in China and its impact on global economic burden remain uncertain.
Methods: We collected data from 3098 patients with AD in 81 representative centers across China and estimated AD costs for individual patient and total patients in China in 2015. Based on this data, we re-estimated the worldwide costs of AD.
Results: The annual socioeconomic cost per patient was US $19,144.36, and total costs were US $167.74 billion in 2015. The annual total costs are predicted to reach US $507.49 billion in 2030 and US $1.89 trillion in 2050. Based on our results, the global estimates of costs for dementia were US $957.56 billion in 2015, and will be US $2.54 trillion in 2030, and US $9.12 trillion in 2050, much more than the predictions by the World Alzheimer Report 2015.
Discussion: China bears a heavy burden of AD costs, which greatly change the estimates of AD cost worldwide.

Keywords: Alzheimer's; Dementia; Cost of illness; Observational study

1. Background

China has become an aging society in the past 20 years. The sixth national population census in 2010 showed that 178 million people were aged ≥ 60 years, 13.26% of the total population [1]. As a result, dementia, especially Alzheimer's disease (AD), is increasing rapidly in China. It was reported that the prevalence of AD was 3.21% among people aged ≥ 65 years [2], and more than 7 million Chinese people live with AD today in China. AD tends to have a long course, various comorbidities, and requirements for long-term care. Consequently, AD confers a heavy economic burden on society and families [3]. In past decades, only two regional studies have investigated the monetary cost of AD in China, in Shanghai and Shandong province [4,5]. There has been no national-scale randomized sampling study on the economic burden in China. To date, no reliable number for the socioeconomic costs of AD in China as a whole has been established.

Most international multilateral cost-of-illness studies for dementia have been carried out in high-income countries [6], and they have provided reliable and timely information to support estimates of the global burden. Evidence has also accumulated with regard to the economic burden of dementia in some low- and middle-income countries, but not in mainland China [7–9]. Based on these studies, the World Alzheimer Report (2015) estimated the worldwide economic costs of dementia [10]. However, this estimate referred to the results of a small study that included only one hospital in one city of China, which hardly seems representative of the entire country. This may have influenced the estimated results, which might be less or greater than the true value. An accurate value for the costs of AD in China is important simply because it will have a great impact on any global estimate numerically. Thus, a large, nationwide survey to determine the true socioeconomic costs of patients with AD in China is urgently needed.

Therefore, we designed the present study to include representative hospitals, nursing homes, and care facilities in both urban and rural areas in almost all parts of mainland China to investigate the socioeconomic costs of patients with AD, and furthermore to analyze the impact of our results on the global AD economic burden.

2. Methods

2.1. Settings

For the region selection, excluding Tibet, Hong Kong, and Macao, 30 provincial, municipal, and autonomous regions in mainland China (the mainland China has a total of 33 regions) were included. For the participating site selection, tier 3 hospitals, mental health centers/psychiatric hospitals, gerontology hospitals, nursing homes, care facilities, and both urban and rural residences, were chosen randomly as study sites. Ultimately, in total, 81 sites were included in this study.

2.2. Participants

Patient were aged ≥ 60 years, and the inclusion criteria were as follows: (1) a primary diagnosis of AD according to the National Institute of Neurologic and Communicative Disorders and Stroke and the Alzheimer's Disease and Related Disorders Association criteria [11], diagnosed by a dementia specialist; (2) complete information about the economic costs of AD and comorbidities, obtained from electronic medical records systems and face-to-face interviews. The details of the inclusion and exclusion criteria are provided in our protocol which was published in BioMed Central Neurology [12].