Utilization of traditional Chinese medicine in patients treated for depression: A population-based study in Taiwan

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Available online 31 March 2013

Summary

Objectives: Traditional Chinese medicine (TCM) has been used to treat depression-like symptoms in Taiwan. We aim to examine factors associated with utilization of TCM in patients with depression and to test whether the use of TCM would impact the use of psychiatric services with a subsequent impact on healthcare costs.
Methods: Adult patients ($n = 216,557$) who received antidepressant treatment for depression in 2003 was identified in the National Health Insurance Research Database in Taiwan. A Two-Part model was conducted. A multivariate logistic regression was employed to explore factors associated with the use of TCM, with a particular focus on baseline comorbidities, painful physical symptoms (PPS), and frequency of psychiatric service contacts over the ensuing 12-month study period. Multivariate generalized linear modeling was then applied to examine factors associated with healthcare costs for TCM users.
Results: More than 40% of individuals prescribed with antidepressant treatments for depression used TCM services. Younger age, female gender, the presence of certain comorbid mental/physical illnesses or PPS, as well as having fewer psychiatric service contacts were found to be associated with the use of TCM services. These factors also affected TCM costs for users; the TCM costs equaled to 30% of costs of psychiatric out-patient services for TCM users.
Conclusions: The current study suggested a set of significant factors which could influence use and cost of TCM services for patients with depression. Utilization of TCM services could have a substantial impact on use of psychiatric services and healthcare costs for patients with depression.
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Unipolar depressive disorder was the fourth leading cause of burden worldwide in 2002 and will continue to grow in the following decades.[1] It is predicted that unipolar depressive disorder will become the leading cause of burden in 2015.[2] In Taiwan, the total direct healthcare costs of depression rose by 50% over the period of 2000—2002[3] and the prevalence of antidepressant use doubled from 1997 to 2004.[4] This could imply an increase in the need for depression treatment, a reduction in the treatment gap, or over-provision of care. Given the anticipated rise in the future healthcare costs and the limited budget of the National Health Insurance (NHI) system, it would help inform decision-making to assess the impact of treating patients with depression from an economic perspective.

Besides modern medical treatment, the traditional Chinese medicine (TCM) is another highly accessible and widely used service incorporated into the NHI system in Taiwan. An earlier survey showed that 60% of Taiwanese people are users of multiple healing systems, including modern medicine, TCM, and religious healing.[5] Even before TCM was covered by the NHI, more than one third of Taiwanese people used TCM during the previous year and a very high percentage (79%) of them regarded TCM as slower in action but more effective than modern Western medicine in treating the root of diseases.[6,7] Deeply rooted in such a public's perception, Taiwan's society is distinctively characterized by its integration of modern Western medicine and TCM. Certain kinds of TCM, such as Chinese herbs and acupuncture, have been used to treat depression-like symptoms for centuries and there has been accumulating evidence examining the efficacy of these treatments[8,9]; it seems likely that depressed patients in Taiwan may also seek help from TCM services with a subsequent impact on healthcare costs of depression treatment.

Up to date, there has been no prior study specifically examining factors associated with utilization of TCM in patients with depression in Taiwan. Therefore, the current study aims to measure TCM service use and cost for patients with depression using claims data from the NHI system in Taiwan. Factors associated with the use and cost of TCM services are examined.

Methods

Data

Data were extracted from the National Health Insurance Research Database (NHIRD) in Taiwan. The NHI in Taiwan is a single-payer compulsory social insurance plan which centralizes the disbursement of healthcare funds and guarantees equal access to health care for all citizens. In 2003, there were 21,869,478 (the population in Taiwan is about 23,000,000) individuals enrolled in the NHI with a coverage rate of 96%. The NHIRD consists of data files characterizing utilization of insured residents, including expenditures, medical procedures/treatments, and basic characteristics of patients, providers and physicians. The NHIRD uses International Classification of Diseases, 9th revision, clinical modification diagnoses. In this study, participants meeting the inclusion criteria were identified from the NHIRD. The index date was defined as the date on which the subject was first prescribed an antidepressant for a diagnosis of depressive disorders in 2003. A 2-year dataset containing all NHI healthcare information on each subject was established through the preceding year before the index date to the year after the index date.

Participants

All insured subjects in Taiwan meeting the following criteria were included:

- At least one prescription for an antidepressant for treatment of major depressive disorder (MDD) (ICD-9-CM codes: 296.2x, 296.3x) or minor depression (ICD-9-CM codes: 311.xx, 300.4x) in 2003.
- Data available for a minimum of 12 months before and after the index date.
- Age $\geq$ 18 years on the index date.

Demographic and clinical information

Demographic and clinical data, including age, gender, diagnosis of depressive disorders, and initial choice of antidepressants on the index date, were extracted. Participants were grouped according to past treatment history, i.e., newly diagnosed depression and non-newly diagnosed depression. Patients with newly diagnosed depression were defined as those who had not received an antidepressant treatment or a depression diagnosis in the 12 months before the index date.

Baseline characteristics regarding comorbid mental disorders (schizophrenia, other psychotic disorders, alcohol and substance problems, bipolar spectrum disorders, dementia, generalized anxiety disorder (GAD), obsessive—compulsive disorder, panic disorder, phobic disorder, post-traumatic stress disorder (PTSD), attention deficit hyperactivity disorder, and sleep disorder), physical disorders (cardiovascular disease, diabetes mellitus, chronic obstructive pulmonary disease (COPD), renal disease, cancer, and stroke), painful physical symptoms (PPS), as well as healthcare utilization/expenditure were traced back for all subjects for the 12 months prior to the index date.

Service use and costs

Service use components extracted from the NHIRD included out-patient services, emergency attendances, and in-patient stays for all reasons. Service use was described by the percentage of patients with at least one unit of service use and the mean number of service contacts. Medication use regarding prescriptions of antidepressants was identified. All costs were calculated from the actual claims data, were described by categories of services, and were expressed in 2003—2004 US dollars.

Statistical analyses

Sociodemographic data, clinical characteristics, baseline healthcare utilization, and initial choice of antidepressants were compared between TCM users and non-users with