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## Research Paper

## The traditional Chinese medicine prescription pattern of patients with primary dysmenorrhea in Taiwan: A large-scale cross sectional survey

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## ABSTRACT

**Ethnopharmacological relevance:** Traditional Chinese medicine (TCM), when given for symptom relief, has gained widespread popularity among women with primary dysmenorrhea (PD). The aim of this study was to analyze the utilization of TCM among PD women in Taiwan.

**Methods:** The use, service frequency and Chinese herbal products prescribed for PD women were evaluated using a cross sectional survey of 23,118 beneficiaries who were recruited from the National Health Insurance Research Database. The logistic regression method was employed to estimate the odds ratios (ORs) for utilization of TCM.

**Results:** Overall, 53.4% ( $N=12,349$ ) of PD women utilized TCM and 92.2% of them sought TCM with the intention of treating their menstruation-related pain symptoms. PD women who do not take prescription painkillers ( $aOR=35.75$ , 95% CI:33.20–38.49) were more likely to seek TCM treatment than those who took pain medication ( $aOR=1.00$ ). There were a total of 213,249 TCM visits due to PD, of which more than 99% were treated with Chinese herbal products (CHPs). *Dang-gui-shao-yao-san* (Tangkuei and Peony Powder) was the most frequently prescribed formula for treating PD.

**Conclusion:** Primary dysmenorrhea women tended to use Chinese herbal products to deal with pain-related symptoms, rather than use acupuncture. *Dang-gui-shao-yao-san*, which containing both sedative and anti-inflammatory agents, is the most commonly prescribed Chinese herbal formula for the treatment of PD. A well designed, double-blind, randomized, placebo-controlled study to further evaluate the efficacy of *Dang-gui-shao-yao-san* as a treatment women with primary dysmenorrhea is warranted.

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## 1. Introduction

Primary dysmenorrhea (PD), defined as the absence of an underlying etiology that is able to explain recurrent, crampy, low abdominal pain that occurs prior to or/and during menses, is one of the most difficult and perplexing health problems of women (Coco, 1999; French, 2005). Primary dysmenorrhea has a major effect on health-related quality of life and productivity as well being both an important aspect of health care expenditure and one of the most common reason for absence from work and school (Grandi et al., 2013). Although several studies have suggested that painkillers are effective way of relieving a sudden attack of menstrual cramps (Nasir and Bope, 2004; Proctor and Farquhar, 2006), in the absence of underlying pathology, no established curable gynecological treatment is available. Thus menstrual leave

is likely to remain problematic, not only because of personal suffering, but also because it is associated with significant economic loss (Grandi et al., 2013). In addition, the chronic administration of painkillers unfortunately can result in a number of common side-effects such as nausea or an upset stomach; such circumstances drive patients to seek alternative medical advice (Zahradnik et al., 2010). Not surprisingly, alternative therapies have become increasingly popular and are quickly approaching conventional therapy in their frequency of use as a treatment for symptom relief among women with PD (Dawood, 2006). Unfortunately, information is limited regarding the patterns of use of classical traditional Chinese medicine (TCM) in relation to primary dysmenorrhea, which seems to be an area in which complementary and alternative medicine has recently grown in popularity. Furthermore, TCM now seems to offer an important alternative or complement to conventional health care in many Western countries (Zhou and Qu, 2009). In view of the above and because there is a lack of knowledge about what the TCM prescription profile consists of, there is a lack of direction among researchers and doctors trained in conventional medicine when, because of a need

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to target primary dysmenorrhea, they want to explore the potential possibilities of TCM therapy, they want to assess the cost-effectiveness of using TCM therapy, and they want to observe the interaction between Chinese herbs and conventional therapies.

TCM, which includes acupuncture, traumatology manipulative therapies and Chinese herbal products, has been an important part of health care in Taiwan for hundreds of years and is fully reimbursed under the current National Health Insurance (NHI) system. Accordingly, the claims database provides a platform for understanding the utilization of TCM therapies by licensed TCM doctors (Chen et al., 2007; Lee et al., 2010). The aim of our study is to analyze a random sample of this comprehensive database and to determine the TCM utilization patterns of women with newly diagnosed primary dysmenorrhea in Taiwan. The results of this study should provide valuable information that will enable physicians to respond in an informed way to their patients' use of TCM, which in turn will further strengthen the patient-physician relationship when treating primary dysmenorrhea.

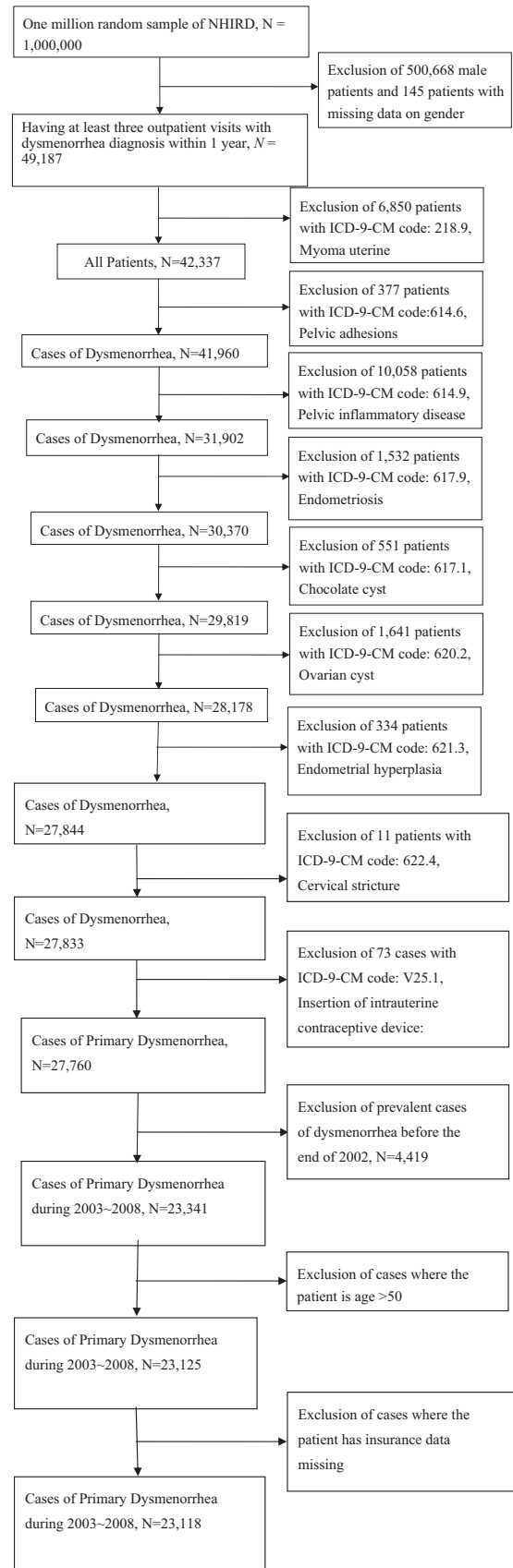
## 2. Materials and methods

### 2.1. Data resources

This study was designed as a cross sectional survey analyzing a sample of one million subjects selected at random from the 22 million beneficiaries of the National Health Insurance scheme of Taiwan. The aim was to determine the prevalence of using prescribed Chinese herbal products among PD women between January 1, 2003, and December 31, 2008. All data were obtained from the National Health Insurance Research Database (NHIRD), which includes all the reimbursement data of the NHI with the identification numbers of all individuals encrypted and transformed; this database is maintained by the National Health Research Institutes of Taiwan (N.H.R.I.). The NHIRD database contained patient's gender and date of birth, all records of clinical visits and hospitalization, all drugs prescribed and their dosages, including CHP, and three major diagnoses coded in the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) format (C.f.D.C.a.P.). Since this study employed de-identified secondary data, it was exempt from full review by the Taipei City Hospital Institutional Review Board.

### 2.2. Study subjects

The selection of study subjects from the random sample of one million individuals was performed as follows (Fig. 1). First, we excluded all male beneficiaries ( $N=500,668$ ) as well as those who had missing information concerning gender ( $n=145$ ). Second, female beneficiaries with dysmenorrhea ( $N=49,187$ ) were included to limit the study sample to patients with painful periods (ICD-9 code 625.3). Third, a diagnosis of dysmenorrhea that are caused by another illness rather than the menstrual cycle were excluded to make sure that all the subjects included were primary dysmenorrhea sufferers (exclusion codes: ICD-9 code 617.9 for endometriosis,  $N=1,532$ ; ICD-9 code 617.1 for endometriosis of the ovary,  $N=551$ ; ICD-9 code 218.9 for myoma uterine,  $N=6,850$ ; ICD-9 code 614.6 for pelvic adhesions,  $N=377$ ; ICD-9 code 614.9 for pelvic inflammatory disease,  $N=10,058$ ; ICD-9 code 620.2 for ovarian cyst,  $N=1,641$ ; ICD-9 code 621.3 for endometrial hyperplasia,  $N=334$ ; ICD-9 code 622.4 for cervical stricture,  $N=11$ ; ICD-9 code V25.1 for insertion or removal of an intrauterine contraceptive device,  $N=73$ ). Fourth, the prevalent cases of dysmenorrhea ( $N=4,419$ ) that had been diagnosed before the end of 2002 and



**Fig. 1.** Flow chart for identifying the outpatient ICD-9-CM code: 625.3 for dysmenorrhea from the National Health Insurance Research Database (NHIRD) of Taiwan over the study period 2003 to 2008.

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