



# Use and toxicity of traditional and complementary medicine among patients seeking care at an emergency department of a teaching hospital in Malaysia

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## ABSTRACT

**Objective:** Traditional and Complementary Medicines (TCM) are widely used worldwide, and many of them have the potential to cause toxicity, interaction with conventional medications and non-adherence to prescribed medications due to patients' preference for the TCM use. However, information regarding their use among patients seeking care at emergency departments (ED) of a healthcare facility is limited. The study aimed to evaluate the TCM use among patients attending the ED of a teaching hospital in Malaysia.

**Study design:** A sub-analysis of data from a prevalence study of medication-related visits among patients at the ED of Hospital Universiti Sains Malaysia was conducted. The study took place over a period of six weeks from December 2014 to January 2015 involving 434 eligible patients. Data on demography, conventional medication, and TCM uses were collected from patient interview and the medical folders. **Results:** Among this cohort, 66 patients (15.2%, 95%CI 12.0, 19.0) reported concurrent TCM use. Sixteen (24.2%) of the TCM users were using more than one (1) type of TCM, and 17 (25.8%) came to the ED for medication-related reasons. Traditional Malay Medicine (TMM) was the most frequently used TCM by the patients. Five patients (7.6%) sought treatment at the ED for medical problems related to use of TCM. **Conclusion:** Patients seeking medical care at the ED may be currently using TCM. ED-physicians should be aware of these therapies and should always ask patients about the TCM use.

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## 1. Introduction

The use of traditional and complementary medicine (TCM) has gained worldwide acceptance in recent years [1]. Many people are now resorting to the use of TCM in the management of disease condition and well-being. The growing trend of TCM use may have been attributed to the dissatisfaction with conventional therapy and the belief that TCM is more compatible with the values, beliefs and philosophical perception about health and wellness [2]. In addition; the increasing rate of use may also be related to the ease of accessibility, use of TCM for health promotion and self-health

care [1]. However, the utilization of TCM varies among countries [1]. In many developed countries, 70%–80% of the population has used some form of TCM while in Asian and African countries, 40%–80% of the population relied on TCM for primary health purposes [3–5]. It has been shown that up to 34% of adults in the United States (US) are using some form of unconventional therapy [2]. In Ethiopia, 43.7% of HIV/AIDS patients were found to be using TCM [5]. Similarly, in Malaysia, the prevalence of TCM use for health maintenance and among those with chronic diseases ranged from 60 to 80% [6–8].

Patients seeking medical care at hospital settings may be using one or more forms of TCM at the time of the visit, and some of these TCM have the potentials to cause toxicity and interact with the conventional medication the patient is concurrently taking or prescribed during the hospital visit. Investigating TCM use among

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patients at a hospital setting will provide information about the proportion of patients simultaneously using some forms of TCM and the burden of TCM-related hospital visits. This will assist in preventing many adverse events related to the use of TCM.

While many TCM prevalence studies were conducted in hospital and ambulatory care setting, the emergency department (ED) is another place in a hospital where users of TCM in a community receive conventional therapy [9]. The majority of studies on the prevalence of TCM among the patients visiting the ED were conducted in the United States (US) and Europe [10,11]. The prevalence rates of TCM use among patients attending the ED in the US and Switzerland was 57% and 55%, respectively [12,13]. To our knowledge, there have been no studies on the use of TCM in an ED setting in this Malaysia. In this paper, we present findings of the prevalence of TCM-use, type of TCM commonly used and ED visits directly related to the use of TCM.

## 2. Materials and methods

### 2.1. Participants and data collection procedure

All patients that visited the ED of Hospital Universiti Sains Malaysia (HUSM) Kelantan, Malaysia, over a six-week period were considered for the study. HUSM is a 767-bed tertiary hospital and found the most extensive referral center on the east coast of Malaysia. Information regarding the patients' socio-demographic characteristics, current medication use and current use of any modality of traditional and complementary medicine (TCM) were collected. The details of the original study protocol and data collection have been described in the primary study, which was previously published elsewhere [14].

### 2.2. Operational definition

The definition of TCM was adopted from the Traditional and Complementary Medicine Division, Ministry of Health Malaysia, which defines TCM as a form of health-related practice designed to prevent, treat, and/or manage illnesses and/or preserve the mental and physical well-being of individuals and includes practices such as traditional Malay medicine, Islamic medical practice, traditional Chinese medicine, traditional Indian medicine, homeopathy, and complementary therapies, and excludes medical or dental practices utilized by registered medical or dental practitioners [4].

### 2.3. Statistical analysis

The data were analyzed using statistical software (SPSS version 21, SPSS Inc, Chicago, Illinois). The results of the descriptive study were presented as frequency (percentages) for categorical variables and mean (standard deviation [SD]) for numerical variables.

### Ethical approval

The ethics committee of Universiti Sains Malaysia approved the study with approval number USM/JEPeM/14100342. All patients included or patient caretakers in case of a child or severely ill patients received information regarding the investigation before giving informed consent.

## 3. Results

### 3.1. Socio-demographic and clinical characteristics of the patients on ED visits

Because of the hectic nature of the ED environment, a

convenience-sampling method was employed. During the six-week period, 1162 patients who came during office hours (9:00 a.m. to 5:00 p.m.) were selected for the study. Seven hundred and twenty-eight (728) patients were excluded: four patients declined to participate, two patients were categorized as medico-legal cases, eight came to the ED to fulfill their prior appointments, and 714 patients were referred cases from other hospitals or health clinics.

A total of 434 eligible patients consented and were interviewed. 133 patients came for medication-related reasons such as adverse drug reactions, drug abuse, and medication non-adherence. Table 1 shows the demographic and clinical characteristics of the ED patients that used TCM. The mean age ( $\pm$ SD) of the TCM users was 45.4 ( $\pm$ 18.3) years. The youngest age was one year, while the oldest was 77-year old Malay female patient. Of these TCM-users, 16 (24.2%) were using more than one type of TCM.

### 3.2. Prevalence of TCM use

Of the 434 included patients, 66 (15.2%, 95%CI 12.0, 19.0) patients admitted to concurrent TCM use.

A high proportion of the TCM users were females 34 (51.5%), patients within age category of 50–59 years 20 (30.3%) and of Malay ethnicity 61 (92.4%). More than half of the TCM users 42 (63.6%) were concurrently taking conventional medication, and 17 (25.8%) came to the ED with complaints related to drugs used. Details of the prevalence rate of the TCM use is demonstrated in Table 1.

### 3.3. Types of TCM commonly used

The most frequently reported modality of TCM was traditional Malay medicine 53 (80.3%). Malay medication included herbal mixtures; *Labisia pumila* locally known as *Kacip fatimah* a flowering plant containing phytoestrogens is widely used among the native Malay. The plant is purported to be used to ease childbirth, as a post-partum medication to contract the birth channel, regulation of the menstrual cycle, and alleviation of menstrual symptoms.

*Air akar kayu* is a mixture of roots and woods of different Malay herbs commonly used in the treatment of many illnesses. *Eurycoma longifolia jack* is locally known as *Tongkat Ali*. It is a flowering plant native to Malaysia, Indonesia and a lesser extent, Thailand. The root of this herb is purportedly used as an aphrodisiac. Table 2: Shows the frequency of different modalities of TCM utilized by ED patients.

### 3.4. ED visits related to TCM use

There were five patient visits, which were determined by the attending physician to be directly associated with TCM use. Two patients were presented with TCM related toxicity; one involving a 52-year-old Malay patient who ingested an unknown herbal mixture and was diagnosed with hepatotoxicity. The second case was that of a 28-year-old female Malay patient with an early miscarriage involving black seed (*Nigella sativa*) use. The other three patients had been taking TCM for their medical conditions and were presented with hypertensive urgency and psychiatric disorders. Previously, they were making conventional medication to treat their medical conditions. These patients were later admitted to the ED observation ward.

## 4. Discussion

In Malaysia, studies on the prevalence of TCM use were mostly conducted in a hospital ward and ambulatory care settings [7,15–17]. The current study was the first to determine the prevalence TCM use among patients seeking care at an ED in Malaysia.

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