

## Study of Traditional and Complementary Medicine (TCM) Usage among Cancer Patients Receiving Chemotherapy in Hospital Melaka

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### Abstract

**Introduction:** Traditional and complementary medicine (TCM) is commonly used among cancer patients.

**Objective:** The aim of this study was to determine the prevalence, types, reasons and belief of TCM use among cancer patients receiving chemotherapy in Hospital Melaka. The study also compared the delay in seeking conventional treatment, chemotherapy adherence and satisfaction level of conventional treatment between TCM users and non-TCM users.

**Methods:** This was a cross-sectional study where data was collected from August to December 2016. A total of 141 cancer patients who were receiving chemotherapy at Hospital Melaka were recruited with written consent. All patients were directly interviewed with a structured questionnaire. The data were analysed using chi-square test and independent t-test in SPSS version 22.0 software.

**Results:** In this study, 68.8% respondents were TCM users. Types of TCM found to be commonly used were soursop fruits and leaves (42.27%), apricot seed (28.87%), butterfly wing leaf (26.80%) and Sabah snake grass (25.77%). The main reason of TCM use was to suppress the progression of cancer (77.30%) and most of them believed that TCM is able to do so (69.90%). TCM usage was associated with ethnicity and household income. Between TCM users and non-TCM users, there were significant differences in the number of weeks delay in seeking conventional treatment and satisfaction toward conventional treatment ( $p < 0.01$ ) but no significant difference in delay of chemotherapy schedule.

**Conclusion:** There was a high prevalence of TCM use among cancer patients receiving chemotherapy in Hospital Melaka and they believed that TCM can suppress the progression of cancer. The results also showed that the most commonly used TCM was Soursop fruits and leaves. TCM use may be contributing to delays in seeking conventional treatment but did not affect chemotherapy adherence. Non-TCM users had higher satisfaction level toward conventional treatment compared with TCM users.

**Keywords:** traditional and complementary medicine, TCM, cancer, chemotherapy, adherence

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## Introduction

Cancer is the principal cause of death worldwide<sup>1</sup>. Based on the Malaysian National Cancer Registry (NCR) report 2007-2011, a total of 103,507 new cancer cases were diagnosed in Malaysia in the 5-year period<sup>2</sup>. Traditional and complementary medicine (TCM) is a form of health-related practice designed to prevent, treat, manage illnesses or preserve the mental and physical well-being of individuals. It 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 utilised by registered medical or dental practitioners<sup>3</sup>. Nutritional therapy is described as a system of healing based on the belief that food provides the medicine we need to obtain and maintain a state of health whereby our food is our medicine<sup>4</sup>.

Previous studies conducted in Asian countries as well as in Malaysia showed high prevalence rate of TCM use among cancer patients<sup>5-11</sup>. However, the effectiveness and safety of using TCM upon diagnosis and in combination with conventional cancer treatment are the concern of breast surgeons, oncologist and the health care team<sup>9</sup>. Besides, TCM use was also found to be associated with delay in seeking conventional treatment among breast cancer patient which led to high incidences of progressive breast cancer and a low survival rate among Malaysian women with breast cancer<sup>12-13</sup>. A study that was done in Malaysia showed that 16.4% of cancer patients stopped the standard treatment while using TCM<sup>8</sup>.

Cancer patients generally perceive cancer as more frightening and less controllable compared to other chronic or life-threatening diseases. Thus, it is important for the healthcare provider to understand the factors motivating them to use TCM<sup>14</sup>. This study examined the prevalence, types, reasons and belief of TCM use among cancer patients receiving chemotherapy. It also compared TCM users and non-TCM users on the delay in seeking conventional treatment, chemotherapy adherence and satisfaction level of conventional treatment.

## Methods

This study was a cross-sectional study conducted among patients whom had solid tumor or hematology malignancies that were receiving chemotherapy in wards or day care centre of Hospital Melaka, Malaysia. Approval to conduct the study was obtained from the Medical Research & Ethnic Committee (MREC), Ministry of Health Malaysia with registration identity NMRR-16-1255-31588.

Data was collected from August to December 2016. All patients who fulfilled the inclusion criteria were recruited into the study. Participation in this study was voluntary with written informed consent. All participants were assured of their confidentiality and the right not to participate or to withdraw at any point during the study. All participants were directly interviewed using a structured questionnaire. The questionnaire was in English and was extracted from a previous study "An Empirical Study on Traditional, Complementary and Alternative Medicine Usage among Malaysian Cancer Patients" by Nagashekhara *et al.* (2015). The permission to use the questionnaire had been obtained from the authors<sup>5</sup>.

Data were analysed using the Statistical Package for the Social Sciences (SPSS) version 22.0. Association between socio-demographic characteristics and TCM use were assessed using chi-square test. Independent t-test was carried out to determine if there was any significant difference between TCM users and non-TCM users in the delay in seeking conventional treatment, chemotherapy adherence, and satisfaction level of conventional treatment and healthcare professional's influence.

## Results

### *Demographics*

The characteristics of included patients were presented in Table 1. A total number of 141 respondents were interviewed whereby 94 (66.7%) were female and 47 (33.3%) were male. The mean age of respondents in this study was 52.3 (standard deviation (SD) 13.8) years old with maximum age of 74 years old and minimum age of 18 years old. There were 97 (68.8%) TCM users and 44 (32.2%) non-TCM users. The mean age was 51.7 (SD 13.9) years old and 53.4 (SD 13.7) years old for TCM users and non-TCM users respectively.

Majority of the respondents were Malay (65.2%), married (82.3%), with secondary education (44.7%), student (52.5%), monthly income in the range of RM0-RM2000 (67.4%) and living in rural area (58.9%). Among the respondents, 32 (22.7%) had breast cancer, 24 (17.0%) had non-Hodgkin lymphoma and 17 (12.1%) had ovarian cancer. Among all the socio-demographic variables, TCM use was found to be associated with ethnicity ( $\chi^2(2)=21.275$ ,  $p<0.01$ ) and household monthly income ( $\chi^2(3)=8.684$ ,  $p<0.05$ ), in which Malay and higher income patients had higher usage of TCM.

### *Types of TCM used*

The most frequently used TCM among respondents were soursop fruit or leaf (42.3%) followed by apricot seed (28.9%), butterfly wing leaf (26.8%) and Sabah snake grass (25.8%) as presented in Table 2.

### *Reason, belief and perception of TCM use*

Most of the TCM users stated that the reason of using TCM was to suppress the progression of cancer (77.3%) and to improve physical well-being (70.1%). More than half of TCM users (69.9%) believed that TCM could suppress the progression of cancer and 53.7% users believed that TCM would not cause any unwanted side effects as it is 'natural'. However, only 3.1% TCM users believed that TCM is more effective than the conventional treatment and 25.7% TCM users believed that TCM is safe to use together with conventional treatment. Moreover, it was noted that more than half of TCM users (60.8%) did not disclose to their doctors that they are using TCM. Among the TCM users, 48.5% said that TCM is somewhat helpful for their cancer followed by 21.6% somewhat not helpful, 20.6% very helpful and 9.3% not at all helpful. On the other hand, non-TCM users stated that they did not use TCM because they had never thought of using it (84.5%), satisfied with conventional treatment (82.2%), did not believe in its efficacy (71.1%) as well as discouragement from family, friends and doctors (68.9%).

As shown in Table 3, there were significant differences in the mean duration delayed in seeking conventional treatment (9.7 weeks versus 2.4 weeks, 95% confidence interval (CI) 2.683, 11.808) and patient's satisfaction score with conventional treatment (mean difference -8.488, 95% CI 10.201, 6.775) between TCM users and non-TCM users. There was no significant difference in the mean frequency of delayed chemotherapy between TCM users and non-TCM users.

Table 1: The socio-demographic and clinical characteristics of TCM and non-TCM users (N=141)

Variables, n (%)	All	TCM user	Non-TCM user
Total respondents	141	97 (68.8)	44(31.2)
Gender			
Female	94 (66.7)	68 (70.1)	26 (59.1)
Male	47 (33.3)	29 (29.9)	18 (40.9)
Ethnicity*			
Malay	92 (65.2)	75 (77.3)	17 (38.6)
Chinese	39 (27.7)	19 (19.6)	20 (45.5)
Indian	10 (7.1)	3 (3.1)	7 (15.9)
Marital status			
Single	18 (12.8)	12 (12.4)	6 (13.6)
Married	116 (82.3)	82 (84.5)	34 (77.3)
Divorced or separated	7 (5.0)	3 (3.1)	4 (9.1)
Education level			
Never	12 (8.5)	5 (5.2)	7 (15.9)
Primary	47 (33.3)	30 (30.9)	17 (38.6)
Secondary	63 (44.7)	46 (47.4)	17 (38.6)
Tertiary	19 (13.5)	16 (16.5)	3 (6.8)
Employment status			
Employed	1 (0.7)	1 (1.0)	0
Student	74 (52.5)	48 (49.5)	26 (59.1)
Unemployed	26 (18.4)	17 (17.5)	9 (20.5)
Retired	6 (4.3)	6 (6.2)	0
Self-employed	34 (24.1)	25 (25.8)	9 (20.5)
Household monthly income*			
0 - 2000	95 (66.7)	60 (61.9)	35 (79.5)
2001 - 4000	30 (21.3)	21 (21.7)	9 (20.4)
4001 - 6000	14 (9.9)	14 (14.4)	0
> 6000	2 (1.4)	2 (2.1)	0
House location			
Rural	83 (58.9)	59 (60.8)	24 (56.8)
Urban	58 (41.1)	38 (39.2)	20 (43.2)
Comorbidity			
Yes	71 (50.4)	48 (49.5)	23 (52.3)
No	70 (49.6)	49 (50.5)	21 (47.7)
Supplement taken before cancer			
Yes	55 (39.0)	42 (43.3)	13 (29.6)
No	86 (61.0)	55 (56.7)	31 (70.5)
Cancer stage			
Stage 1	7 (5.0)	7 (7.2)	0
Stage 2	27 (19.1)	18 (18.6)	9 (20.5)
Stage 3	35 (24.8)	24 (24.7)	11 (25.0)
Stage 4	34 (24.1)	26 (26.8)	8 (18.2)
Unclassified	27 (19.1)	15 (15.5)	12 (27.3)
Unknown	11 (7.8)	7 (7.2)	4 (9.1)
Satisfied with conventional treatment			
Yes	120 (85.1)	81 (83.5)	39 (88.6)
No	12 (8.5)	9 (9.3)	3 (6.8)
Not sure	9 (6.4)	7 (7.2)	2 (4.5)

\* association between variables and TCM use was observed (Chi-square test)

Table 2: Types of TCM used

Non-pharmacological, n (%)			
Tai chi	3 (3.1)	Aromatherapy	1 (1.0)
Ceragem bed	3 (3.1)	Relaxing exercise	1 (1.0)
Massage	3 (3.1)	Qi Gong	1 (1.0)
Yoga	1 (1.0)		
Pharmacological, n (%)			
Soursop fruit or leaf	41 (42.3)	Lingzhi	3 (3.1)
Apricot seed/ Vitamin B17	28 (28.9)	Miracle water ( <i>Air Ajaib</i> )	3 (3.1)
Butterfly wing leaf	26 (26.8)	Lemon/ morning elixir	2 (2.1)
Sabah Snake grass	25 (25.8)	Stem cell product	2 (2.1)
Habbatus Sauda /Black seed	10 (10.3)	Olive oil	2 (2.1)
Traditional Malay Medicines	8 (8.3)	Royal jelly	1 (1.0)
Traditional Chinese Medicine	7 (7.2)	Ginseng	1 (1.0)
Nutritional beverages	7 (7.2)	Jering/ Jenkol	1 (1.0)
Vitamins and minerals tablet	6 (6.2)	Hydrogenised drinking water	1 (1.0)
Antioxidant capsule/tablet	5 (5.2)	Rodent tuber	1 (1.0)
Honey	5 (5.2)	Beet root	1 (1.0)
Pomegranate fruit	5 (5.2)	Date palm	1 (1.0)
Unknown product	5 (5.2)	Betel	1 (1.0)
Alkaline water	4 (4.1)	Homeopathy	1 (1.0)
Spirulina	4 (4.1)	Traditional Indian Medicine	1 (1.0)
Chorella	3 (3.1)		

Table 3: Comparisons between TCM users and non-TCM users (N=141)

Variables	TCM users (n=97), mean (SD)	Non-TCM users (n=44), mean (SD)	Mean difference (95% CI)	P-value
Patient's satisfaction score with conventional treatment	20.2 (6.68)	28.7 (3.57)	-8.488 (10.201, -6.775)	0.000
Number of weeks delayed in seeking conventional treatment	9.7 (21.06)	2.4 (5.50)	7.245 (2.683, 11.808)	0.002
Frequency of chemotherapy delayed	0.13 (0.45)	0.07 (0.33)	0.066 (-0.084, 0.215)	0.385

## Discussion

This study showed high prevalence of TCM use among cancer patients in Hospital Melaka which supported the findings of other studies done in Malaysia<sup>5,7,8,15</sup>. TCM use has become more common and widely acceptable among cancer patients. This could be that chronic, painful, debilitating or fatal conditions such as cancer are perceived more frightening than other chronic or life-threatening diseases and led to high usage of TCM<sup>16,17</sup>. Studies conducted in other Asian countries reported a high prevalence of TCM use as well. For example, the prevalence of TCM use was 60.9% in Thailand, 55% in Singapore, 60.9% in Palestine and 93.4% in China<sup>6,10,11,18</sup>. A meta-analysis of 152 studies from 18 western countries such as New Zealand, United States, Australia, Canada and the Europe reported that the combined prevalence for current use of TCM across all studies was 40% which is lower than this study<sup>19</sup>. This could be explained by the differences in culture and religions across the population as well as different definitions of TCM<sup>6,8</sup>.

Ethnicity and household monthly income were found to be associated with TCM usage in this study. This was supported by the findings of Raja Lexshimi RG *et al.* in 2013 whereby high prevalence

of TCM use was found among the Malay and Chinese ethnic groups<sup>9</sup>. A few studies observed that TCM users tend to be higher earners as TCMS are more affordable to this group of population<sup>6,9,20,21</sup>. For other socio-demographic variables, conflicting findings have been reported. Several studies in Malaysia reported education level was linked to higher prevalence of TCM use<sup>7,8,20,21</sup>. It was suggested that better educated patients tend to be more critical towards conventional therapy and are more aware of TCM treatment. However, some other studies had reported similar findings to the present study that education level is not associated with TCM usage<sup>6,9</sup>.

In this study, TCM was classified into pharmacological and non-pharmacological treatment and it was found that the usage of natural products was much higher than the others. The four most popular natural products were soursop fruit and leaf, apricot seed, butterfly wing leaf and Sabah snake grass. A study by Raja Lexshimi RG *et al.* in 2013 found that nutritional supplements (41.8%), herbal products (40.2%) and multivitamin (33.6%) were the most frequently used TCM, and Sabah snake grass was identified the most commonly used herbs among the herbal products<sup>9</sup>.

Soursop fruit is also named Graviola. Several laboratory studies reported that soursops have beneficial effects such as anticonvulsant, antiparasitic, anti-arthritic, antimalarial, antidiabetic, hepatoprotective and anticancer. Furthermore, soursop extracts were reported to have significant anti-cancer properties in a number of cancer cell lines both in vitro and in vivo<sup>22</sup>. However, a systematic review on soursop's anticancer properties proposed that further studies are required to verify the exact anticancer properties and the mechanism of action of its anticancer properties. More robust and systematic clinical trials are necessary to test and verify its true validity and safety before confirmed as a therapeutic anti-cancer agent<sup>22,23</sup>.

Christia vespertilionis, commonly known as butterfly wing is an ornamental plant in cultivated gardens in South East Asia because of its uniquely shaped trifoliate leaves. In traditional medicine, this plant is believed to treat snake bites, tuberculosis, heal bone fractures, increase blood circulation, bronchitis and cold<sup>24</sup>. The extracts of Christia vespertilionis revealed antiproliferative and proapoptotic effects in all human medullary thyroid carcinoma (MTC) and human small intestinal neuroendocrine tumor (SI-NET) cell lines<sup>25</sup>. There was no comprehensive evidence concerning the phytochemistry, pharmacology and toxicology of this plant, and safety assessment and clinical trials were required before it can be integrated into the treatment of cancer<sup>26</sup>.

Amygdalin is a cyanogenic glycoside plant compound found naturally in apricot kernels. It is also found in kernel of peaches and bitter almonds. Laetrile is a semi-synthetic form of amygdalin. The anti-cancer property of amygdalin is believed to come from the cyanide released from the enzymatic degradation of amygdalin<sup>27</sup>. Another theory claimed that cancers were due to the deficiency of a vitamin, named 'vitamin B17', which was the name given to amygdalin by a chemist E.T. Krebs<sup>28</sup>. Nevertheless, there was no reliable evidence supporting the alleged effects of laetrile for curative effects in cancer patients<sup>28,29</sup>. Yet, it had high risk of developing serious adverse effects from cyanide poisoning especially after oral ingestion of laetrile. Hence, the United States Food and Drugs Administration (FDA) and the European Commission had banned its use<sup>28</sup>.

Sabah snake grass (*Clinacanthus nutans*) has been traditionally used as natural medicine in Malaysia, Indonesia and Thailand for treating certain diseases such as skin rashes, insect bites, diabetes mellitus, fever and diuretics<sup>30</sup>. Phytochemical constituents of *Clinacanthus nutans* present in chloroform extract may be used as an alternate adjunctive or chemopreventive regimen for patients at risk of cancers as it possessed antioxidant and antiproliferative properties against cultured cancer cell lines<sup>31</sup>. An animal study found that *Clinacanthus nutans* possessed potential antitumour and immunomodulatory properties<sup>30</sup>. However, different ways of extraction may produce different cytotoxic activity. Hence, further studies were recommended on potential use of these extracts as anticancer and pharmaceutical applications<sup>32</sup>.

The finding on reasons of using TCM in this study was supported by other studies, where most of the respondents used TCM to suppress the progression of cancer and improve physical well-

being<sup>33,34</sup>. TCM users believed that they are harmless and would do more “good” than “harm” to their general well-being<sup>35</sup>. TCM users are willing to try any form of therapy that could cure them or at least stabilise their life-threatening conditions. However, this is opposed by clinical practise as it may cause moderate to severe life threatening events and unknown possible side effects<sup>36</sup>.

One of the reasons for delay in seeking treatment was the strong cultural belief in traditional medicine<sup>37</sup>. In a study done by Hisham & Yip in 2004 on 1,526 women with newly diagnosed breast cancer, about 45% presented at a late stage of the disease<sup>38</sup>. Delays in seeking conventional medical care had not only led to increased burden of the disease but also increased cost<sup>39</sup>. The results of this study conformed to a study done by Nagashekhara et al. in 2015 where increase in patient satisfaction with conventional treatment was correlated with a decrease in use of TCM<sup>5</sup>. Cancer patients that use TCM were often found among those not satisfied with conventional treatment due to side effects, worsening of symptoms or spreading of cancers<sup>40</sup>.

In this study, there were 60.8% of TCM users that did not inform their doctors about their TCM usage. According to Farooqui et al. (2015), the major reason given for nondisclosure was “it is not important for the doctors to know about TCM use”, and this could indicate patients’ lack of knowledge regarding the harmful interactions of TCM with conventional therapies<sup>7</sup>.

The main limitation of this study was that the subjects were interviewed at a hospital setting hence there was a possibility that patients were somewhat restrained in providing the complete account of their TCM use to please the interviewers. Patients may not admit that he or she is taking TCM simply due to the fear of being scolded by their doctors. Additionally, even though standardisation on the verbal delivery of the questionnaires in Malay and Mandarin was conducted before starting the data collection, some difficulties were still encountered by the interviewers in assisting the respondents to answer the questionnaire that was written in English.

## Conclusion

This study found that there was a high prevalence of TCM use among cancer patients and soursop, apricot seed, butterfly wing leaves and Sabah snake grass were the common types of TCM used. This finding further supported the claims that there is a growing interest in TCM use especially among cancer patients. Most of TCM users agreed that they used TCM to suppress the progression of cancer and they believed that TCM are able do so. On top of that, a significant difference was found between TCM users and non-TCM users in patient’s satisfaction level with conventional treatment and the delay in seeking conventional treatment. This issue should be raised to physicians and oncologists. Future studies may focus on the perceived benefits or adverse effects of TCM use on cancer progression, the amount of TCM used per patients and the costs incurred for TCM use.

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## Conflict of Interest Statement

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