

Consumption of herbal products: a study of urban community survey

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RESEARCH

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ABSTRACT

Background

Formulation of herbs into dosage forms promotes their marketing and usage. However, if these herbal products are being taken in an unhealthy trend, they may pose risks to consumers.

Aims

The present study aimed to investigate herbal product consumption trends (n=550) among adults in the main cities of Malaysia.

Methods

A questionnaire-based, six-week cross-sectional study was conducted. Respondents were randomly selected in Shah

Alam, Klang, Subang, and Kuala Lumpur. Descriptive statistics were used for data analysis and Chi-square test was applied where appropriate.

Results

Out of the 550 survey instruments distributed, 453(82.4 per cent) responded. The prevalence rate of herbal products use among the adult population in the past 12 months was 71.5 per cent. Regarding the consumption profile; the consumers were mostly female (73.4 per cent), age 25–44 (72.8), and educated at tertiary level (74.8 per cent). The majority of respondents perceived that herbal products helped reduce severity of illness and improve health related quality of life, while (16.4 per cent) consumed the herbal products for the treatment of menstrual problem, 71.7 per cent without the recommendation of health care professionals and 85.0 per cent of them purchased through over-the-counter retail sales. The herbal products most commonly consume were *Labisia pumila* (Kacip Fatimah) (32.4 per cent), *Camellia sinensis* (Green Tea) (32.1 per cent), *Panax ginseng* (Ginseng) (23.8 per cent), and *Eurycoma longifolia* (Tongkat Ali) (22.5 per cent).

Conclusion

This study highlights an unhealthy trend in self-prescription of herbal product consumption without healthcare professionals' recommendation. Hence, there is an urgent need for healthcare professionals to monitor herbal product consumption.

Key Words

Herbal product, current trends, consumption risks

What this study adds:

1. What is known about this subject?

There is an upward trend in herbal product use worldwide.

2. What new information is offered in this study?

An unhealthy trend in self-prescription of herbal products without healthcare professionals' recommendation is occurring widely in Malaysia.

3. What are the implications for research, policy, or practice?

There is an urgent need for healthcare professionals to monitor herbal product consumption.

Background

As early as 3000 BC, herbs have been recognized for their medicinal properties and therefore, has been used as cures in the treatment of various illnesses.¹ To date, herbal products are still being used to treat various ailments alongside with modern medicines.² A report by the World Health Organization (WHO) defined herbal products as herbal preparations made from one or more herbs, containing excipients in addition to the active ingredients.³ As herbal products are derived from natural plants, they are perceived to be safer and natural, contributing to the upward trend in the demand for natural products as well as plant-based phytochemicals and skin care products globally.² The WHO estimated about 80 per cent individuals are primarily using herbal products worldwide for developing countries.¹ In Malaysia, households recorded and estimation of 73 per cent of herbal product consumption based on a research conducted in 2012 by the Forest Research and Institute Malaysia (FRIM).²

Herbal products can be beneficial though it can also be harmful in several circumstances. Consumption of herbal products in an unhealthy trend may pose risks to consumers. Herbal product use without recommendation from healthcare professionals (HCPs) has become a factor for the rise in herbal-drug interactions and harmful side effects. The public also believe in their efficacy without proper knowledge, substantial data, and scientific evidence. Moreover, some of these herbal products have been reported to contain impermissible level of heavy metals which can be detrimental to consumers' health. Due to these reasons, it is important to analyse the current trends in herbal product use among the public which also include the consumption profile of the consumers, as well as identifying the popularly used herbal medicines nowadays.

Method

Sample Frame

A six-week cross-sectional survey was conducted in Shah Alam, Klang, Subang, and Kuala Lumpur, the main cities of Malaysia. This study elucidated mainly, the general trend of herbal product consumption among Malaysian adults. Four researchers, with three years of academic experiences in pharmaceutical sciences, pharmacy practice, statistics, and research methodology were employed to conduct the survey study. Prior to the survey, the researchers were educated about the aim and methodology of the study to standardize the approach in questionnaire administration between the researchers. The researchers were posted as one team in each venue to collect data daily from 10 a.m. to 9 p.m.

The survey was conducted through face-to-face interview with language translation assistance when needed, and less than 1 per cent of responses were collected via mail services. Both herbal product consumers and non-consumers were polled for their views. Adults at or above 18 years of age, and were willing to communicate were randomly selected as respondents. A total of 550 survey instruments were distributed and a total of 453 respondents completed the survey, thereby giving rise to a response rate of 82.4 per cent. Ninety-seven questionnaires were handled by non-responders who declined to participate or failed to provide the required information for the survey. These questionnaires were not critical for the analysis of interviewer-administered survey in accordance with Clement et al.⁴

Survey Instrument

An instrument relevant to local context with respect to types of herbal products sold in Malaysian market was designed in English language. It consisted of sections on demographic information and general trends of herbal product consumption over the past 12 months. The herbal products are defined as dosage forms such as tablets, capsules, agglomerates, suspension, and others which carry one or more types of herbs. The demographic information investigated included the age, gender, marital status, ethnic of origin, type of occupation, level of education, and monthly income level. The status and duration of herbal product consumption and mode of herbal product purchase were evaluated using dichotomous and ordered-category multichotomous response methods. The perception of use of herbal products was examined using the Likert-type response method. The information sources of herbal products, types of herbal product purchased, and the health problems prompting usage were elucidated through

selecting one or more of the given choices.

The survey instrument was scrutinized by experts on its content and face validity to ensure that it is comprehensive and relevant for use by target population. The criteria for inclusion of items of investigation were largely based on overseas research studies.^{4,5–10} A small scale pilot test was conducted with 10 randomly selected participants. All pilot test respondents had expressed favourable consensus on the applicability, understandability, and administrability of the survey instrument. None had indicated problems or inappropriate items in the survey.

Sample Size Calculation

The sample size required for this study was calculated based on a formula.

$$n = \left[\frac{Z^2 \times P(1-P)}{\Delta^2} \right]$$

Using confidence level (Z) of 1.96, absolute precision (Δ) 0.05, and assuming the expected proportion of individual consuming herbal product to be 0.5, a sample of 384 was calculated. Moreover, 20 per cent was added in case of incomplete or drop out. Hence, the total sample size needed was 461. Even though, in order to increase the power of the study and reduce non-response rate a total of 550 survey instruments were distributed.

Data Analysis

The data were analysed by using Statistical Package for the Social Science Version 12 (SPSS Inc., Chicago, USA). The information was evaluated descriptively, presented in the form of frequency data, and Chi-square test was applied where appropriate.

Results

The respondents consisted of herbal product consumers and non-consumers (n=453). The majority of respondents were aged between 25 and 44 years old (53.6 per cent), female (62.3 per cent), married (57.2 per cent), and originated from Malay ethnic group (94.2 per cent). Most of the respondents considered themselves as semi-professionals (73.7 per cent). More than half of the respondents had undergone tertiary educational training (53.4 per cent), while more than 90 per cent of them had a monthly income of RM 3 000 (US\$ 714) or less.

Out of the 453 respondents, 71.5 per cent were herbal product consumers. Among the consumers (n=324), the percentage of female consumers, calculated with respect to female respondents, was higher than male consumers

(Table 2). The percentage of respondents with tertiary education and were consumers of herbal products, expressed with respect to the population who had the same level of education, was higher than respondents who received secondary education (Table 1 and 2), similar to that of reported by Kennedy in association with a survey undertaken in United States (US).¹¹

There was a high degree of agreement that the use of herbal products helped to reduce severity of illness (male consumers: 96.6 per cent; female consumers: 97.1 per cent) and improve the health-related quality of life (HRQoL) (male consumers: 79.1 per cent; female consumers: 81.3 per cent). The majority of female consumers perceived that herbal product consumption was somewhat important, whereas the majority of male consumers felt that it was slightly important (Chi-square test: $p < 0.05$).

A total of 71.5 per cent of respondents had consumed herbal products in the past 12 months. Of all consumers, 48.3 per cent had less than a year consumption record while 24.3 per cent and 27.4 per cent had consumed herbal products for one to two years and more than two years respectively. Herbal products of *L. pumila* were found to have ranked as the most consumed herbal products among the consumers (32.4 per cent) (Table 3) and the majority of respondents (16.4 per cent) consumed herbal products for the treatment of menstrual problem (Table 4). 71.7 per cent of the consumers had consumed herbal products without the recommendation of HCPs and 85.0 per cent of them purchased herbal products through over-the-counter retail sales.

Discussion

The current study has indicated that the use of herbal medicines among adult population in Malaysia is common. These may be probably due to the perceived effectiveness as the majority of the respondents also agreed that herbal product use can improve health related quality of life (HRQoL) as well as reduction of severity of illness. Similar to a study conducted in Thailand, a high percentage of respondents believed that herbal products can help in curing diseases, providing nourishment, relieving symptoms such as pain, in addition to maintaining general health.¹² A study conducted in Trinidad, Venezuela also supported these findings whereby the majority of herbal users perceived that herbal products are effective and some also perceived that herbal products are more effective as compared to conventional medicines.¹³

Studies done in the United Kingdom (UK), US, and Australia

reported that pharmacist were frequently involved in the supply of herbal products.¹⁴ However, in this study, a large number of respondents had consumed herbal products without any recommendation from HCPs. Hassali et al. reported that Malaysians tend to self-prescribe herbal products due to the perception that herbal products are natural substances and therefore, are safer for consumption rather than prescription medicines.¹⁵ However, more than half of the respondents from the same study supported that they would consult HCPs prior to consumption of any herbal aphrodisiacs.

Findings of this study showed that herbal products from local traditional plants were found to have ranked as the most consumed herbal products among the respondents. This may be because, such plants received a relatively wide acceptance among the majority of the populace. This finding was similarly reported by Hussain et al. in which these herbs were the most popularly used in South-East Asian countries.¹⁴ *L. pumila* derived from the family of plants called Myrsinaceae happened to be the most frequently consumed herbal products in the current study, particularly among females and married. This is probably due to its reported aphrodisiac effects. The entire plant has been used traditionally to gain energy, libido, and cure delayed fertility. In addition, it has also been used to facilitate labour during delivery, regain body strength, and alleviate symptoms of dysmenorrhea.¹⁶ In contrast with *L. pumila*, *E. longifolia* was consumed more by males rather than female consumers. The plant comes from the family called Simaroubaceae. Among the consumers of *E. longifolia*, married consumers also achieved a higher percentage as compared to unmarried consumers, similar to *L. pumila*. This is probably due to the aphrodisiac effects of its root which have been used traditionally to treat sexual dysfunction in men, in addition as energy and strength booster.¹⁷

Appropriate use of herbal products requires an integrated control from marketing, manufacturing, legal, and health authorities, as well as the consumers themselves. From the present trends of herbal product consumption behaviour, there was an unhealthy trend in self-prescription of herbal product consumption without HCPs recommendation. Hence, there is an urgent need for HCPs to monitor herbal product consumption. It is concluded that married females, educated at tertiary level should be first identified by health authorities to understand their risks associated with herbal product consumption.

Further study should involve evaluation of reported hospitalization related to consumption of herbal product.

The current study was conducted in few cities of Malaysia, as such the findings may not be generalized to the general populace.

Conclusion

Consumption of herbal product among adult population in Malaysia is common, and more predominant among female, and people with tertiary level of education. Majority of such products were from plants of local origin and purchased over-the-counter without proper consultation with HCPs. Control of these products and their consumption is therefore needed to improve the wellbeing of the general population.

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ETHICS COMMITTEE APPROVAL

UiTM Research Ethics Committee [REC/192/16]

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PEER REVIEW

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CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

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Table 1: Demographic Information of Respondents (n= 453)

Demographic Characteristic	Frequency (%)
Gender	
Male	37.7
Female	62.3
Age Range (years old)	
18 - 24	24.1
25 - 44	53.6
45 - 64	21.9
≥ 65	0.4
Marital Status	
Single	41.5
Married	57.2
Widowed/divorced	1.3
Ethnic of Origin	
Malay	94.2
Chinese	1.6
Indian	2.2
Others	2.0
Type of Occupation	
Professional	10.1
Semi-professional	73.7
Self-employed	1.1
Retired	0.9
Student	12.8
Unemployed	0.7
Others	0.7
Level of Education	
Primary	1.3
Secondary	45.3
Tertiary (university/college)	53.4
Monthly Income Level*	
< RM 1 000	30.2
RM 1 000 - RM 3 000	64.5
RM 3 000 - RM 5 000	3.7
> RM 5 000	1.6

*Currency conversion rate: US\$ 1: RM 4.20

Table 2: Stratified Consumption Status of Herbal Products with Respect to Demographic Profiles of Respondents (n= 453)

Demographic Characteristic	Frequency (%)	
	Status of Consumption	
	Yes	No
Gender		
Male	68.4	31.6
Female	73.4	26.6
Age Range (years old)		
18 - 24	70.6	29.4
25 - 44	72.8	27.2
45 - 64	69.7	30.3
Marital Status		
Single	71.8	28.2
Married	71.0	29.0
Level of Education		
Secondary	67.8	32.2
Tertiary	74.8	25.2

Table 3: Profiles of Principal Herbal Products Used by Consumers (n= 324)

Order of Prevalence	Type of Herbal Products	Frequency (%)
1	<i>Labisia pumila</i> (Kacip Fatimah)	32.4
2	<i>Camellia sinensis</i> (Green Tea)	32.1
3	<i>Panax ginseng</i> (Ginseng)	23.8
4	<i>Eurycoma longifolia</i> (Tongkat Ali)	22.5
5	<i>Oenothera biennis</i> (Evening Primrose) Oil	18.2
6	<i>Allium sativum</i> (Garlic) Supplement <i>Orthosiphon aristatus</i> (Misai Kucing)	13 13
7	<i>Ginkgo biloba</i> (Ginkgo)	12.3
8	<i>Piper betle</i> (Sirih)	10.8
9	<i>Zingiber officinale</i> (Ginger) Supplement	10.1
10	<i>Triticum aestivum</i> (Wheatgrass)	7.1
11	Others: <i>Echinacea purpurea</i> (Purple Coneflowers), <i>Hypericum perforatum</i> (St. John's Wort), <i>Ambrosia artemisiifolia</i> (Ragweed)/ <i>Matricaria chamomilla</i> (Chamomile), <i>Piper methysticum</i> (Kava Kava), <i>Serenoa repens</i> (Saw Palmetto), <i>Taraxacum officinale</i> (Dandelion), <i>Stevia rebaudiana</i> (Stevia), <i>Ocimum tenuiflorum</i> (Holy Basil), <i>Azadirachta indica</i> (Neem), <i>Phyllanthus niruri</i> (Dukung Anak), <i>Ocimum basilicum</i> (Selasih), <i>Tanacetum parthenium</i> (Feverfew), <i>Glycyrrhiza glabra</i> (Licorice), <i>Silybum marianum</i> (Milk Thistle), <i>Crataegus monogyna</i> (Hawthorn), <i>Valeriana officinalis</i> (Valerian), <i>Vaccinium myrtillus</i> (Bilberry), <i>Momordica charantia</i> (Bitter Melon), <i>Boswellia serrata</i> (Boswellia), <i>Oxycoccus macrocarpos</i> (Cranberry), <i>Andrographis paniculata</i> (Hempedu Bumi), <i>Morinda citrifolia</i> (Noni), <i>Monascus purpureus</i> (Red Yeast) Rice, <i>Salix alba</i> (White Willow) Bark, <i>Hordeum vulgare</i> (Barley) Leaf Extract, and <i>Melastoma malabathricum</i> (Senduduk)	< 7

Table 4: Main Medical Illnesses Which Prompted the Usage of Herbal Products (n= 324)

Order of Prevalence	Type of Medical Illnesses	Frequency (%)
1	Menstrual problems	16.4
2	Sinusitis	12.0
3	Headache/migraine	11.8
4	Head/chest cold	10.8
5	Cholesterol disorder	10.2
	Skin problems	10.2
6	Joint pain/stiffness	9.3
7	Back pain	8.9
8	Hypertension	8.3
9	Arthritis/gout/lupus/ fibromyalgia	7.4
10	Bowel problems	7.1
11	Others: stomach/intestinal illness, anxiety/depression, insomnia/sleeping problems, menopause, neck pain, diabetes, prostate problems/impotence, hay fever/allergy, urinary tract problems, asthma, poor circulation in legs, and recurring pain	< 7