



Knowledge and characteristics of herbal supplement usage among community pharmacy customers in a Malaysian population



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ABSTRACT

Objectives: We investigated the knowledge and characteristics of herbal supplement usage of the customers of community pharmacies in a Malaysian population.

Design and setting: Self-administered questionnaires (in English, Malay, or Chinese) were provided to customers at three community pharmacies in Malaysia (Ipoh, Perak). Questionnaire validation and translation validation were performed. A pilot study was conducted before actual questionnaire distribution. Informed consent was obtained from all participants.

Results: Total number of participants was 270 (99 males and 171 females) with majority from the 31–50 age group (41.5%). Among the participants, 45.6% were herbal users. The most commonly used herbal supplements were evening primrose oil (17.9%), ginkgo biloba (13.0%), and milk thistle (8.5%). The participants seemed to have sufficient knowledge regarding herbal supplements including safety, quality, and indication of use from medical literature. Participants obtained information about herbal supplements from pharmacists (26.9%), package inserts (25.2%), friends (20.5%), and the Internet (13.3%) more often than from their doctors (9.8%). Most herbal users did not inform their doctors about their usage of herbal supplements (68.3%) or the side effects (61.5%). Herbal supplement users also tended to be women, > 50-year-old, and those with higher monthly household incomes.

Conclusions: Community pharmacists have a vital role in educating their customers about the safe use of herbal supplements. The participants had sufficient knowledge about herbal supplement usage; therefore, customers of these community pharmacies may have benefitted from the advice of the pharmacists. Further studies could be carried out in future on the knowledge, skills and roles of community pharmacists in the safe use of herbal supplements.

1. Introduction

The Dietary Supplement Health and Education Act classified herbs as dietary supplements.¹ According to the World Health Organization (WHO), herbs include crude plant material such as leaves, flowers, fruit, seed, stems, wood, bark, roots, rhizomes or other plant parts that may be whole, fragmented, or powdered.² In the United States, out-of-pocket expenditures on natural product supplements was approximately \$12.8 billion in 2012.³ In Malaysia, the Ministry of the Natural Resources and Environment estimated the herbal local market to expand by 15% a year from RM 7 billion in 2010 to around RM 29 billion by 2020.⁴

The increasing use of herbal supplements by the Malaysian public was a concern as most use herbal supplements without informing their doctors.⁵ Saw and colleagues reported that 42.4% of their study sample (N = 250) reported herbal supplements use.⁶ In addition, 34.4% and

73% of pregnant women used herbal supplements during pregnancy and labour, respectively.⁷

The WHO reported cases of suspected adverse reactions to herbal products, adulteration of herbal supplements with other medications, and contamination with other substances, which concerns healthcare professionals.⁸ Similar reports were found in other references.^{9–12} Healthcare professionals, including community pharmacists, play vital roles in educating patients about the safety and quality of herbal supplements.

It is believed that the customers of community pharmacies have better knowledge on the appropriate use of herbal supplements. Therefore, we investigated whether the customers of community pharmacies are using herbal supplements appropriately by examining their knowledge of the safety and quality of herbal supplements including potential herb-drug interactions, side effects, and appropriate dosage and quality. We also examined whether participants informed

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Table 1
Participants' demographic characteristics.

Characteristics	Overall		Pharmacy A (n = 92) ^a	Pharmacy B (n = 64) ^a	Pharmacy C (n = 114) ^a	p ^c
	(N = 270) ^a	p ^b				
Age (years)						
18–30	68, 25.2	0.001 ^{***}	24, 26.1	12, 18.8	32, 28.1	0.469
31–50	112, 41.5		33, 35.9	31, 48.4	48, 42.1	
51–70	78, 28.9		31, 33.7	17, 26.5	30, 26.3	
> 70	12, 4.4		4, 4.3	4, 6.3	4, 3.5	
Sex						
Male	99, 36.7	0.001 ^{***}	35, 38.0	25, 39.1	39, 34.2	0.768
Female	171, 63.3		57, 62.0	39, 60.9	75, 65.8	
Ethnicity/race						
Chinese	206, 76.3	0.001 ^{***}	66, 71.7	39, 60.9	101, 88.6	0.001 ^{***}
Malay	48, 17.8		19, 20.7	21, 32.8	8, 7.0	
Indian	14, 5.2		6, 6.5	3, 4.7	5, 4.4	
Other	2, 0.7		1, 1.1	1, 1.6	None	
Education level						
Primary	16, 5.9	0.001 ^{***}	4, 4.3	7, 10.9	5, 4.4	0.665
Secondary	126, 46.7		49, 53.3	24, 37.5	53, 46.5	
College or university	128, 47.4		39, 42.4	33, 51.6	56, 49.1	
No formal education	None		None	None	None	
Household income (monthly)						
< RM 1000	27, 10.0	0.001 ^{***}	9, 9.8	10, 15.6	8, 7.0	0.747
RM 1000–3000	114, 42.3		41, 44.5	24, 37.5	49, 43.0	
RM 3000–5000	76, 28.1		25, 27.2	16, 25.0	35, 30.7	
> RM 5000	53, 19.6		17, 18.5	14, 21.9	22, 19.3	
Marital status						
Single	83, 30.7	0.001 ^{***}	25, 27.2	20, 31.2	38, 33.3	0.633
Married	187, 69.3		67, 72.8	44, 68.8	76, 66.7	
Current medications						
Yes	89, 33.0	0.001 ^{***}	33, 35.9	24, 37.5	32, 28.1	0.337
No	181, 67.0		59, 64.1	40, 62.5	82, 71.9	
Current use of herbal supplements						
Yes	123, 45.6	0.144	46, 50.0	34, 53.1	43, 37.7	0.081
No	127, 54.4		46, 50.0	30, 46.9	71, 62.3	

^a Values are n, %.

^b p-value within group by chi-square test.

^c p-value between groups by Kruskal-Wallis test.

*** p < 0.001.

their doctors about their use of herbal supplements, whether they reported the side effects of herbal supplements, and whether they obtained information about herbal supplements before consumption.

2. Methods

2.1. Study design and setting

A cross sectional, self-administered questionnaire was implemented. The questionnaire was adopted and modified based on two prior studies.^{13,14} The study was conducted from August–September 2016 in three community pharmacies in Malaysia (Ipoh, Perak): pharmacy A (north of Ipoh), pharmacy B (south east of Ipoh) and pharmacy C (south west of Ipoh) to address most areas of the town and include a broad population.

Convenience sampling was utilized. Participants were recruited as pharmacy customers. Inclusion criteria comprised being aged ≥18 years and able to read, listen, and write in English, Malay, or Chinese. Participants completed the questionnaires in the pharmacies, following the instructions written on the questionnaire without interference from the researchers. A research assistant was at the site to answer any potential questions.

Informed consent was acquired before the survey. The purpose of the questionnaire, ethical consideration regarding data usage, and the duration were made clear. This study was approved by the Faculty

Research and Scholarly Activity Committee, Faculty of Pharmaceutical Sciences, UCSI University.

2.2. Sample size

Sample size was calculated before the study to estimate the number of participants to be recruited.¹⁵

$$N = \frac{(Z_{1-\alpha/2})^2 p(1-p)}{d^2}$$

<p>N: sample size $(Z_{1-\alpha/2})^2$: 1.96 with a 95% confidence level; p < .05 p: expected prevalence or proportion in population based on previous studies d: Absolute error or precision</p>

In this survey, an expected prevalence value of 0.19 was used, which was based on previous studies.^{13,14} The calculated sample size for this study was 237.

2.3. Survey instrument

2.3.1. Questionnaire design

The study questionnaire comprised of four parts: general knowledge of herbal supplements, usage and purpose of herbal supplements, current health conditions, and demographics (Appendix A). Participants'

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