

A Study on Herbal Drugs Utilization in Health Care Professionals (Physicians/Academicians)

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ABSTRACT

Objective: To investigate the herbal drugs utilization by healthcare professional (physician/academician) at AIMST University, Kedah D.A., and Malaysia. **Method:** Analysis was carried out by using a Software Package for Statistical Analysis, Version 20. A total of 168 healthcare professional (physician/academician) were interviewed. **Results:** The result showed that 150 (89.2%) used herbal drugs while 18 (10.8%) were not. The ethnicity showed that 99 (86.1%) Indians used herbal drugs 66.0%. The utilization of herbal drugs was 52.0% within the age groups of 31-40 years. Respondents 68 (90.7) from Faculty of Medicine utilized herbal drugs 45.3% more as compared to other faculties. The less experienced respondents 45 (84.9%) utilized 30% and was least in highly experienced. Most of the respondents were having Master's qualification 102 (85.7%), Ph.D. 25 (100.0%) and the utilization was 68.9% and 18.0% respectively. The respondents engaged in academics were 143 (87.7%) and utilization was 96.6%. The respondents agreed for mild illness 96 (57.1%), economic cost 70 (41.7%) and familiar with treatment option was 63 (37.5%). **Conclusion:** Highest utilization was

in mild illness, diabetes and gastric problems. Common herbal as a drug used by the respondents was bitter gourd (*Momordica charantia*).

Key words: Herbal drugs, health care professionals, ethnicity, common cold, cough.

Key message: It is deeply expected that this submitted article will occupy the place in your esteemed journal. You are, as an editor, humbly requested to kindly accept and send the acceptance acknowledgement in early hours. Thanking you in anticipation.

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INTRODUCTION

Home to some of the world's heavy rainforests, Malaysians have boosted remarkable biodiversity with a great range of plant species. The Malaysian herbal product market is experiencing a tremendous growth due to intense public interest in the use of crude plant-based products as medications.^{1,2,3,4} More people are turning to herbal products as an alternative to the conventional therapeutic medicine. Malaysians consume approximately RM1.2 billion worth of imported herbal products annually.^{4,5} According to recent estimate by the World Health Organization (WHO), more than 3.5 billion people in the developing countries including Malaysia are relying on plants to treat various ailments.⁶ The Statistics Department Government of Malaysia in 1996 reported that a total import of medicinal plants amounting to RM 93.4 million in 1986, gradually increased to RM 264.8 million in 1996. For the period from January to November, 2003, the Malaysian Pharmaceutical market was estimated to be about RM 1.84 billion (U.S. \$ 484 million), registering a growth of 5.5 % over the corresponding period of 2003. The market for herbal remedies was estimated to be above RM 2 billion (U.S. 530 million \$). It is estimated that about 2700 products are registered by Drug Control Authority, with more than 10,000 traditional / herbal products. Malaysian rain forests support more than 12,000 plant species out of which 2000 species have been reported for medicinal value. The traditional medicine presented in pharmaceutical form will require registration to National Pharmaceutical Control Bureau and today about 17,000 products have been registered. In Malaysia, total import of pharmaceutical and natural products was RM 2712 million and export was RM 496 million. In the year 1997, Malaysians spent about RM 2.0 billion on herbal medicines.

Herbal drugs are the most frequently used (49.4%) by adult patients in Malaysia.⁷⁻¹⁰ In 1999, more than 8000 herbal products were registered with the Ministry of Health, Malaysia. This illustrated the potential of the herbal market in Malaysia. Moreover the general public was also accessed in connection with the utilization of herbal drugs.^{4,8-11} The objectives of the present study is to understand the utilization of herbal drugs through valid and reliable questionnaire and to determine the effect of respondent's socio-demographics characteristics on the use of herbal drugs against various indications/illness by health care professionals (physicians/academicians).

Ethical approval

The joint committee of School of Pharmaceutical Sciences, USM, Penang – Lam Wah Ee Hospital, Penang on clinical studies approved the protocol of this study with reference letter No. USM-HLWE/IEC/2011 (0016) on 30.06.2012. The study was also registered with National Medical Research Registry (NMRR) and was approved by Medical Research & Ethics Committee (MREC), National Medical Research Register Malaysia (NMRR Reference I.D. 10124 (Nabila Perveen C/O Azmi Sarriff) on 14.10.2011.

Methodology for present study

In current study cross sectional approach by non-probability sampling was adopted; using self-administered questionnaire for health care professionals (physicians/academicians). In this study, Mann-Whitney U and Kruskal-Wallis tests were applied to variables with two or more

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independent variables. Variables used in this study were divided as dependent variable and independent variable.¹²⁻¹⁹

The survey was carried out from the respondents who were at the age of 18 years and above. Moreover, respondents contributed meaningfully and effectively towards the study. Respondents were surveyed by self-interview (one to one interview) and by distribution. Written consent was also obtained from the respondents who participated in the study as an ethical requirement.

Sample size determination was carried out to ensure the number of respondents needed as representative sample study for the whole population, health care professionals (physicians/ academicians). The sample size was calculated on the basis of utilization of herbal drugs.²⁰⁻²³ The aim of the calculation was to determine an adequate sample size to estimate population based sample size with a good precision.²⁰⁻²⁴

$$n = \frac{Z^2 \cdot P(1 - P)}{d^2}$$

In the sample size calculation for the present study, the parameters which were necessary to be considered ; indicator percentage; margin of error; confidence level, population size and critical value for the confidence level. The indicator percentage was assumed (0.50); margin of error was kept at 5%; which is the amount of admissible error. Thus for lower margin of error, the larger sample size is required.^{19,20}

Data analysis was started after data collection, screened and input in a computer program. In present study, Statistical Package for the Social Sciences (SPSS) 20 was used for quantitative data analysis. Data for the study was gathered from two main sources, primary and secondary. The primary data was collected through questionnaires by self-interviews / question-answer session (one to one interview) or by distribution of questionnaires to respondents. The source of primary data for the study included respondents (health care professionals) and the secondary data for the study included reports, project documents, journals, magazines. In addition, information from the internet was also included in secondary database.

Approximately total number of health care professionals (physicians/ academicians) from Faculties of Medicine, Pharmacy, Dentistry, Nursing and Physiotherapy were about 200.²⁴ So, the projected sample size of respondents came to be around 200. Based upon the population size of 200 and 95% of confidence level with 5% error of margin, the sample size calculated was 132 (based on above cited formula and equation). The total number of respondents surveyed for this study was 168.

RESULTS

Out of 168 respondents (health care professionals (physicians/academicians), males were 98 (58.3%) and females were 70 (41.7%). Based upon races and nationalities, respondents holding Indian nationality, were dominant during the survey, which was 112 (66.7%) while respondents from other nationalities were 33 (19.6%). Most of the respondents were having Master's qualification 119 (70.8%) and those holding Ph.D. degree were 27 (16.1%).

Table 1 indicates the rate and reasoning for the utilization of herbal drugs. In this category of the reasons and rating for utilization of herbal drugs the results showed that most of the respondents agreed upon the use of herbal drugs for mild illness which was 96 (57.1%) and for cost effectiveness 70 (41.7%) respectively.

Table 2 explains that male respondents were 85 (86.7%) and females were 65 (92.9%). Malays and Malaysian Chinese were combined for precise analysis. Indian Nationals were 99 (86.1%) and others 31 (93.9%). For analysis purpose, the respondents from Faculties of Pharmacy, Physiotherapy and Nursing added. The results showed that respondents from Faculty of Medicine utilized more herbal drugs as compared to other faculties. Table 3 indicates the names and number of indications / illness for which the herbal drugs were utilized by health care professionals (physicians / academicians).

The results for the herbal drugs utilization in health care professionals (physicians/academicians) in various indications/illness are tabulated in Table 4. The male respondents utilized herbal drugs in two and three indications/illness as compared to females. The Indian ethnic group was dominant in utilization of herbal drugs also in two and three indications/illness. Age group 31-40 years old respondents also utilized herbal drugs in two and three indications/illness.

Table 5, explains about the binary logistic regression analysis of health care professionals (physicians/academicians) where the variables were combined for analysis purpose.²⁰ Regarding gender, the number of males was 85 (86.7%) and females were 65 (92.9%). As regards ethnicity was concerned, all Malaysians were combined with other Nationalities and Indian Nationals respondents were placed in separate groups. The respondents were 51 (96.2%) for Malaysians and others while it was 99 (86.1%) in Indian National group respondents. All Faculties (Pharmacy, Physiotherapy, Dentistry and Nursing) were combined for analytical purpose which was 82 (88.2%) while respondents from the Faculty of Medicine were 68 (90.7%). Age groups were condensed to two groups (with 40 years and above 40 years). In age group 1, it was 90 (84.1%) and

Table 1: Reason and rating for utilization of herbal drugs by health care Professionals (physicians/academicians)

No.	Reason	Response (n/%)	Rating				
			Strongly Agree (n/%)	Agree (n/%)	Undecided (n/%)	Disagree (n/%)	Strongly Disagree (n/%)
1.	Cost effectiveness	25(14.9)	15 (8.9)	70(41.7)	13 (7.7)	26 (15.5)	12 (7.1)
2.	Time saving	18(10.7)	12 (7.1)	52(31.0)	26 (15.5)	27 (16.1)	11 (6.5)
3.	Mild illness	31(18.4)	20 (11.9)	96(57.1)	14 (8.3)	11 (6.5)	1 (1.8)
4.	Privacy *	13 (7.7)	15 (8.9)	45(26.8)	21 (12.5)	30 (17.9)	6 (3.6)
5.	Familiar with treatment options	24(14.3)	20 (11.9)	63(37.5)	20 (11.9)	18 (10.7)	4 (2.4)
6.	Quick relief	10 (5.9)	4 (2.4)	29(17.3)	28 (16.7)	35 (20.8)	7 (4.2)
7.	Condition did not merit to see doctor	22(13.1)	16 (9.5)	37(22.0)	12 (7.1)	30 (17.9)	7 (4.2)
8.	Advised from friends / relatives	25 (14.9)	1 (0.6)	4 (2.4)	1 (0.6)	2 (1.2)	–

n= number of respondents participated, % = percentage of respondents participated, privacy

*= (free from unwanted or undue intrusion or disturbance in one's private life or affairs.

Table 2: Inferential analysis for herbal drug utilization by health care professionals (physicians/academicians)

Variables		Frequency* (%)	Response n (%)	Herbal drugs utilization (%)	df	χ^2 value	P-value
Gender	Male	98 (58.3)	85 (86.7)	56.7	1	1.6	0.206
	Female	70 (41.7)	65 (92.9)	43.3			
Ethnicity	[Malays+Malaysian Chinese]	13 (7.7) + 7 (4.2)	20 (100)	13.3	2	4.3	0.112
	Indians **	112 (66.7)	99 (86.1)	66.0			
	Imigrants***	33 (19.6)	31 (93.9)	20.7			
Job Experience	Up to 5 years		45 (84.9)	30.0	3	3.3	0.336
	6-10 years		42 (87.5)	28.0			
	11-20 years		31 (91.2)	20.7			
	21years and above		32 (97.0)	21.3			
Job nature		103 (61.3)					
Academics		65 (38.7)					
Profession	Medicine	75 (44.6)	68 (90.7)	45.3	2	2.6	0.268
	[Pharmacy + Physiotherapy + Nursing]	27 (16.1) + 9 (5.4) +17 (10.1)	49 (92.5)	32.7			
	Dentistry	40 (23.8)	33 (82.5)	22.0			
Age group	Up to 30 years		13 (100)	8.7	3	9.0	0.029
	31-40 years		78 (83.7)	52.0			
	41-50 years		24 (96.0)	16.0			
	51 years and above		35 (97.2)	23.3			
Qualification	Diploma	3 (1.8)	3 (100.0)	2.0	3	2.3	0.500
	Bachelor	19 (11.3)	18 (94.7)	12.0			
	Master	119 (70.8)	102 (85.7)	68.0			
	Ph.D.	27 (16.1)	27 (100.0)	18.0			

* = Socio-demographic characteristics, ** = only Indian Nationals,

*** = Pakistan, Myanmar, Bangladesh, Iraq, Indonesia

Table 3: Indications / illness for which herbal drugs were utilized by health care professionals (physicians/academicians)

No.	Indication/illness	Detail of indications
1.	All Pains	Headache, muscular pain, ear pain, gastric pain (all coded)
2.	All pains + Respiratory	Headache, muscular pain, ear pain, gastric pain, Cough, common flu, chills (all coded)
3.	All pains + Respiratory + fever	Headache, muscular pain, ear pain, gastric pain, Cough, common flu, chills + fever (all coded)
4.	All pains + Respiratory +fever + others	Headache, muscular pain, ear pain, gastric pain, common flu, chills + fever, infections, allergies, ease in labour (all coded)
5.	All pains + Respiratory +fever + G.I.T. + others	Headache, muscular pain, ear pain, gastric pain, common flu, chills + fever, infections, allergies, ease in labour (all coded)

in age group 2, the respondents were 60 (98.4%). In health care professionals (physicians/academicians), after binary regression analysis, it was found that there was no association found as regards the age, gender, ethnicity, professionals and qualification groups was concerned in utilization of herbal drugs.

DISCUSSION

A Total of 168 health care professionals (physicians/academicians) from the Faculties of Pharmacy, Medicine, Dentistry, Nursing and Physio-

therapy from AIMST University, Bedong, Kedah D.A., were surveyed. It was observed that the respondents with higher educational levels were inclined more towards utilization of herbal drugs.³¹ Males were higher than females. This study explained that majority of the respondents were expatriate, mostly from India. Malays, Malaysian Chinese and Malaysian Indians were less in number. Maximum health care professionals (physicians/academicians) were from Faculty of Medicine followed by Pharmacy, Dentistry, Nursing and Physiotherapy. Most of the respondents were having Master's qualification and those with Ph.D. were comparatively

Table 4: Utilization of herbal drugs in various indications/illness by health care professionals (physicians/academicians)

Variables			One n (%)	Two n (%)	Three n (%)	Four n (%)	Five n (%)	df	(χ^2) value	P- value			
Gender	Male	Response	8 (9.4)	27 (31.8)	22 (25.9)	14 (16.5)	14 (16.5)	4	7.356	0.118			
		Utilization	34.8	64.3	66.7	50.0	50.0						
	Female	Response	15 (23.1)	15 (23.1)	11 (16.9)	14 (21.5)	10 (15.4)						
		Utilization	65.2	35.7	33.3	50.0	41.7						
Ethnicity	Malays + Malaysian Chinese	Response	9 (45.0)	6 (30.0)	2 (10.2)	3 (15.0)	0 (0.0)				8	29.920	0.000
		Utilization	39.1	14.3	6.1	10.7	0.0						
	Indians**	Response	7 (7.1)	30 (30.3)	28 (28.3)	19 (19.2)	15 (15.2)						
		Utilization	30.4	71.4	84.4	67.9	62.5						
	Immigrants***	Response	7 (22.6)	2 (19.4)	3 (9.7)	3(19.4)	9 (29.0)						
		Utilization	30.4	14.3	9.1	21.4	37.5						
Profession	Medicine	Response	12 (17.6)	17 (25.0)	11 (16.2)	12 (17.6)	16 (23.5)	8	21.783	0.005			
		Utilization	52.2	40.5	33.3	42.9	66.7						
	[Pharmacy, Physiotherapy, Nursing]	Response	11 (22.4)	14 (28.6)	8 (16.3)	12 (24.5)	4 (8.2)						
		Utilization	47.8	33.3	24.2	42.9	16.7						
	Dentistry	Response	0 (0.0)	11(33.3)	14 (42.4)	4 (12.1)	4 (12.1)						
		Utilization	0.0	26.2	42.4	14.3	16.7						
Employment	All Professors	Response	20 (38.5)	17 (32.7)	5 (9.6)	7 (13.5)	3 (5.8)	8	43.84	0.000			
		Utilization	87.0	40.5	15.2	25.0	12.5						
	Lecturers	Response	3 (4.5)	18 (26.9)	20 (29.9)	2 (6.4)	15 (22.4)						
		Utilization	13.0	42.9	60.6	39.3	62.5						
	Senior Lecturers	Response	0 (0.0)	7 (32.7)	3 (25.8)	3 (32.3)	6 (19.4)						
		Utilization	0.0	40.5	15.2	35.7	25.0						
Age group	Up to 30 years	Response	2 (15.4)	2 (15.4)	1 (7.7)	1 (7.7)	7 (53.8)	12	42.40	0.000			
		Utilization	4.8	4.8	3.0	3.0	29.2						
	31-40 years	Response	4 (5.1)	24 (30.8)	23 (29.5)	17 (21.8)	10 (41.7)						
		Utilization	17.4	57.1	69.7	60.7	41.7						
	41-50 years	Response	4 (16.7)	10 (41.7)	1 (4.2)	6 (25.0)	3 (12.5)						
		Utilization	17.4	23.8	3.0	21.4	12.5						
51 years and above	Response	13 (37.1)	6 (17.1)	8 (22.9)	4 (11.4)	4 (11.4)							
	Utilization	56.5	14.3	24.2	14.3	16.7							
Qualification	Diploma	Response	1 (33.3)	0 (0.00)	0 (0.00)	2 (66.7)	0 (0.00)	12	16.820	0.157			
		Utilization	4.3	0.0	0.00	7.1	0.00						
	Bachelor	Response	4 (22.2)	6 (33.3)	3 (16.7)	2 (11.1)	3 (16.7)						
		Utilization	17.4	14.3	9.1	7.1	12.5						
	Master	Response	5 (10.6)	31 (29.8)	28 (26.9)	18 (17.8)	16 (15.4)						
		Utilization	47.8	73.8	84.8	64.3	66.7						
	Ph.D.	Response	7 (28.0)	5 (20.0)	2 (8.0)	6 (24.0)	5 (20.0)						
		Utilization	30.4	11.9	6.1	21.4	20.8						

Number of indications = Table 3, (One – Five) = indications/illness, %= herbal drugs utilization, n (%) = number of respondents ant its percentage, df = degree of freedom, χ^2 value = Pearson Chi-square test, P = calculated by Pearson Chi-square test, **=Indian Nationals,*** = Pakistan, Myanmar, Bangladesh, Iraq, Indonesia

Table 5: Binary logistic regression analysis of health care professionals (Physicians/academicians)

Variables	n (%)	Exp (B) (OR)	95% CI for Exp (B)		P value
			Upper	Lower	
Gender					
Male	85 (86.7)	0.431	0.123	1.516	0.190
Female	65 (92.9)				
Ethnicity					
Malaysians + Immigrants	51 (99.0)	3.617	0.588	22.248	0.165
Indian nationals	99 (86.1)				
Profession (Faculties)					
Medicine	68 (90.7)	0.428	0.131	1.401	0.161
Pharmacy + all other faculties	82 (88.2)				
Qualification					
Bachelor + Diploma	21 (95.5)	0.411	0.116	1.457	0.168
Master	102 (85.7)				
Ph.D.	27 (100.0)				
Age Groups (years)					
Group1	90 (84.1)	0.068	0.008	0.607	0.016
Group 2	60 (98.4)				

OR = Exp (B) expected odds ratio, CI = confidence interval for exp (B), P= significant value, n (%) =number of respondents response and percentage, All Other Faculties = Pharmacy, Dentistry, Physiotherapy, Nursing, Age Groups (years) = Group1 (upto 40 years), Group 2 (above 40), Immigrants = Pakistani, Bangladeshi, Iraqi, Myanmar and Indonesia.

less. Reasons and rating for utilization of herbal drugs, the results showed most of the respondents agreed upon the use of herbal drugs for mild illness and for cost effectiveness. Most of the respondents agreed upon utilization of herbal drugs were for time saving. Most of the respondents were well aware of their treatment options for the utilization of herbal drugs from their culture, religious belief and tradition.^{23,24} Most of the respondents utilized herbal drugs for cough and common cold, headache, gastric pain and constipation. Some respondents had also utilized the herbal drugs for fungal infections, ophthalmic allergy, cosmetic allergy, skin allergy (eczema).^[21-24] A few respondents utilized herbal drugs for muscular pain due to tiredness from physical stress during working. Gastric pain may be associated with some sort of food disturbance/poisoning and physiological changes.^[20-24] Bitter gourd usage among the respondents was highest among the herbal drugs utilization by respondents in the form of dried raw material. It is known for its anti-hyperglycemic actions and most of the respondents were from India or of Indian origin (Malaysians), who rely upon this herbal to cure many diseases.^[11,15,18] Respondents also used herbal drugs in the form of slightly warm tea after each meal because it helped in dissolving and clearing the food stuffs like sticky or oily materials. Some of the respondents also used cinnamon extract with tea for various actions. Most of the respondents did not observe any problem or during or after the utilization of herbal drugs.

The herbal drugs utilization among the health care professionals (physicians/academicians) was 88.1% which was quite high. In age group, the maximum utilization of herbal drugs among the respondents of age group (31-40) years and minimum was at the age group of 41-50 years. This study showed that the maximum herbal drugs utilization was among lecturers.

On account of the inferential analysis purpose, the number of indications/illness were reduced and condensed from 16 to 5. Herbal drugs utilization in male/female respondents was in one/two and five indications/illness. The Malays and Malaysian Chinese were combined where the herbal drug utilization was high in one indication/illness. Utilization

by Indian Nationals was higher in two and three indications. It was observed that herbal drugs utilization was highest in one and five indications/illness among the respondents of Faculty of Medicine. Faculties of Pharmacy, Physiotherapy and Nursing Faculties were combined due to analysis purpose and the results showed that herbal drugs utilization was higher in in one, two and four indications/illness. Maximum utilization of herbal drugs was at the age group of 31-40 years old respondents. Masters qualified respondents highly utilized herbal drugs which was in three, two and five indication/illness while Ph.D. holders utilized herbal drugs in one indication/illness.

CONCLUSION

Most of the respondents from health care professional's group were of Indian nationals. Many of the respondents of this group also utilized energy products having the herbal base origin. Reason behind may be that in India, the herbal drugs utilization is quite common from small ailments to complicated diseases. This is the part of their culture being herbal drugs more safe and reliable. Among the respondents, the maximum utilization of herbal drugs was against the cough and common cold, the minimum utilization was for headache, constipation and gastric pain. Male respondents utilized herbal drugs more than female respondents. Faculty of Medicine respondents utilized more as compared to the respondents of other Faculties. Among the lecturers group having Master's qualification, more trend has been observed towards herbal drugs utilization. Age group of 31-40 year respondents utilized highest number of herbal drugs. The respondents utilized mostly in two, three and five indications/illness. Mild illness, cost effectiveness and familiar with treatment options were common factor towards herbal drugs utilization. Most of the respondents used bitter gourd which was known for its best use in lowering blood glucose. It was revealed that there was no association found as regards the age, gender, ethnicity, profession and qualification among respondents.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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