Herbal Medicine: Affecting Factors and Prevalence of Use Among Thai Population In Bangkok

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Background: *Remarkable growth in use of herbal medicines has recently been noted. In Thailand, eight items of herbal medicines with single composition are currently placed on the National List of Essential Medicines (EM). This study was to clarify the actual state of factors affecting the usage and knowledge of these herbal medicines, as the study concerning with these aspects was infrequently performed.*

Material and Method: *A descriptive and cross-sectional research was conducted by using self-administered questionnaires. Six hundred and thirty-one subjects were randomly sampling and the data were analyzed by the Statistic Package for the Social Sciences software program.*

Results: *The finding revealed that 28.6% of total subjects had experienced on herbal medicine treatment, especially eight items listed in EM. The elderly and government officers usually purchased the drugs from hospital and drugstore, while housewife purchased them from supermarket. Subjects with positive attitude towards herbal medicine use usually were government officers. Almost all of herbal medicines were well-known about their indications by less than 55% of total subjects. Among all well-known indications, the relief of gastric distress by Zingiber officinale was the most well- known one (73.2%). On the other hand, high percentage of media exposure (55-70%) was found in majority of the subjects which indicated that media was more likely to influence consumer's knowledge and behavior.*

Conclusion: *Only 28.6 % of total subjects had experienced on herbal medicines listed in EM, despite of high percentage of media exposure. Therefore, the providing proper information of herbal medicines on various medias and integrated education about herbal medicine in medical curricula could effectively help increase appropriate drug use and consumers' safety.*

Keywords: *Herbal medicine, Thai population*

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The popularity of herbal medicines has greatly increased in the Westernized and Easternised countries over recent years[1-4] since the World Health Organization urged its member countries to use folk healing practices and herbal medicines as part of the basic public health projects. This has also prompted Thailand to become interested in using herbal medicines and Thai traditional medicines. The Thai government began to support an attempt to develop herbal medicines and Thai herbal drugs systematically. In 1999 some items of herbal medicines were placed on the National List of Essential Medicines (EM) as part of an effort to promote the use of herbal medicines and provide diversity of alternatives for health care. So in pharmaceutical industry, herbal medicines displays the profile with a more rapid production, modern formulations and a convenient administration. According to the National List of Essential Medicine 2008 (the current version), two types of herbal medicines are placed. They are: 1) Herbal medicines which are made of a composite of herbal medicines, have been used traditionally and widely by the people from time immemorial. 2) Herbal medicines which have been developed from a single herbal plant with an evidence indicating its safety for use in humans. Therefore eight herbal medicines are listed in the latter category, they are *Zingiber officinale, Andrographis paniculata, Zingiber cassumunar, Capsicum frutescens, Curcuma longa, Clinacanthus nutans, Centella asiatica* and *Cassia alata*[5]. All of these drugs are extracted from local herbal plants in Thailand which

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provide a lot of pharmacological effects. Although many of these remedies are used safely and widely used, the indication officially listed in EM are limited. Since not all remedies have adequate trials to facilitate the use of such items. In 2004, one study showed that there were many factors affecting the usage of herbal medicine, such as high cost, poor preparation, inadequate scientific researches, low confidence of physicians to use herbal medicine for their treatment and lacking of the drug knowledge of comsumers[6]. These problems may affect an appropriate drug use and the growth of herbal medicine industry. Therefore, the serious problems need to be continuously followed-up for consumer safety. The purpose of this study was to clarify the actual state of herbal medicine use, explore factors influencing consumer purchasing behavior as well as to assess the knowledge about indication of herbal medicines, especially the eight items listed in EM. Thus it is expected that the findings will be used as guidelines in promoting appropriate herbal drug use and purchasing.

Material and Method

The present study was a descriptive and cross-sectional research conducted between June, 2008 to August, 2009.

Sample

Sample size representing Thai population in Bangkok was determined by using Taro Yamane formula whereas total population in the present study was estimated from 930,818 persons who either visited or worked at Phramongkutklao Hospital and Phramongkutklao College of Medicine within one year, the desired level of precision was 0.05. Therefore, 631 subjects were randomly selected. Their ages ranged from 15 to 86 years.

Instrument

The instrument used was a check-list questionnaire consisting of demographic information of each subject, information about the herbal drug-purchasing behaviors, attitudes toward herbal drugs and knowledge of various indications of the eight herbal medicines. This questionnaire and research method of the present study were already approved by The Institutional Review Board, The Royal Thai Army Medical Department.

The details in each part of questionnaire were as followed :

Part 1: Demographic information of each subject consisted of gender, age, education level and career.

Part 2: Herbal drug-purchasing behaviors consisted of places of purchasing such as; hospital, drugstore, grocery, supermarket, direct sale and others. Attitudes toward herbal drugs were focused on either positive attitudes; such as accepted and used, preferred as it was refundable, accepted to use for some mild illness, or negative attitude (refused to use).

Part 3: Source of information about herbal medicines received by the subjects were from physicians, self-study (either briefly or in detail), mass media exposure (*e.g.* newspaper, magazine, radio, television and internet) as well as suggesting others to use and others. Finally, experience as well as knowledge about the indications both officially and unofficially listed in EM of eight herbal medicines were asked.

Data collection

The data were collected mainly at Phramongkutklao Hospital and Phramongkutklao College of Medicine by the researcher and two well-trained assistants. All volunteer participants were asked to complete the self-administerd questionnaires.

Statistical analysis

All data were assessed by using the Statistic Package for the Social Sciences software programe (Version 17; SPSS Inc., Chicago, Illinois, USA). Descriptive statistics such as percentages and means were used to describe the sample on the various variables. The Pearson Chi-Square Test was used to detect univariate association between independent factors. The conventional $p < 0.05$ was used to determine statistic significance.

Results

Subject demographics

Of the total subjects, 49.8% were male and 50.2% were female with mean age of 26.7 ± 13.2 and 31.7 ± 14.2 years, respectively. Majority of subjects were highly educated (54.0%) and undergraduate students (51.1%) (Table 1).

Attitudes and purchasing behavior of subjects

The finding revealed that 28.6% of total subjects had experienced to use herbal medicines, especially eight items listed in EM. Most of the subjects who had positive-attitude to use herbal medicine were government officer ($p = 0.04$), while most of the subjects who refused to use herbal medicine were highly

Table 1. Overview of the demographic characteristics of subjects

Characteristics	Number (n = 631)	Frequency (%)
Gender		
Male	314	49.8
Female	317	50.2
Age (y)		
15-30	410	65.0
31-40	71	11.2
41-50	94	14.9
> 50	56	8.9
Education level		
Primary school	67	10.7
Secondary school	223	35.3
University	341	54.0
Career		
Military personnel	93	14.7
Government officer	40	6.3
Employee	101	16.0
Business	25	4.0
Housewife	34	5.4
Student	322	51.1
Other	16	2.5

Table 2. Attitude of various groups of consumers towards herbal medicine use

Characteristics	Frequency (%)	
	Positive attitude[#] (p-value)	Negative attitude[$] (p-value)
Gender		
Male	6.2 (0.63)	6.6 (0.68)
Female	2.4 (0.39)	1.9 (0.35)
Age (y)		
15-30	8.7 (0.77)	2.2 (0.57)
31-40	3.4 (0.78)	1.5 (0.54)
41-50	3.0 (0.69)	0.3 (0.47)
> 50	0.5 (0.35)	0.5 (0.38)
Education level		
Primary school	1.6 (0.51)	0.5 (0.32)
Secondary school	4.7 (0.19)	1.9 (0.10)
University	10.5 (0.64)	1.9 (0.01)*
Career		
Military personnel	3.3 (0.28)	0.5 (0.81)
Government officer	0.8 (0.04)*	0.3 (0.06)
Employee	2.6 (0.32)	0.5 (0.22)
Business	0.5 (0.57)	0.5 (0.29)
Housewife	1.7 (0.51)	0.5 (0.63)
Student	6.6 (0.67)	2.2 (0.06)
Others	1.1 (0.21)	0.3 (0.12)

= accepted and used, $ = refused to use, * = $p < 0.05$

educated person ($p = 0.01$) (Table 2). According to consumer purchasing behavior, it was shown that elderly and government officers usually purchased the remedies from hospital ($p = 0.001$ and 0.03, respectively) and drugstore ($p = 0.02$ and 0.01, respectively), while housewife purchased them from supermarket ($p = 0.04$). In addition, highly educated consumers usually seeked them in hospital ($p = 0.02$) and supermarket ($p = 0.02$) (Table 3).

Knowledge of the drug indications

The result demonstrated that well-known indications of *Zingiber officinale, Andrographis paniculata, Zingiber cassumunar, Capsicum frutescens, Curcuma longa, Clinacanthus nutans, Centella asiatica* and *Cassia alata* were to relieve gastrointestinal distress, relieve sore throat, decrease edema from mild trauma or injury, increase digestion, antiflatulant, treat herpes simplex, provide wound healing in mouth and be laxative, respectively (Table 4). However, *Capsicum frutescens* was well-known for indication as of increase digestion which was unofficially listed in EM. On the contrary, some other indications which already listed in EM such as antidiarrhea by *Andrographis paniculata* was not widely known by subjects.

It was also found that the majority of the subjects (> 60%) received knowledge of herbal drugs from mass media. Despite of high percentage of media exposure (55-70 %) for each item of herbal medicines, only the knowledge of *Andrographis paniculata* (80%) and *Curcuma longa* (57.7%) were higher than 50% (Fig. 1). Statistic relationship between media exposure and most of subjects' careers as well as education level including government officer ($p = 0.07$), housewife ($p = 0.01$), employee ($p = 0.04$) and highly educated person ($p = 0.001$) were noted. Moreover, it was shown that most of subjects (5 out of 6) who usually liked to suggest others to use the remedies were female (83.33%, $p = 0.03$).

Discussion

Our data revealed that 28.6% of Thai population in Bangkok using herbal medicines which was slightly different from those of others, such as

Table 3. Purchasing behavior of consumers

Characteristics	Percentage of purchasing, (p-value)				
	Hospital	Drugstore	Supermarket	Direct sale	Total (%)
Gender					
Male	4.7 (0.07)	20.6 (0.44)	7.7 (0.05)	7.4 (0.34)	40.4
Female	14.4 (0.08)	20.6 (0.35)	11.4 (0.07)	6.3 (0.45)	52.7
Age (y)					
15-30	5.2 (0.07)	28.2 (0.08)	11.1 (0.20)	8.7 (0.43)	53.2
31-40	0.8 (0.08)	5.7 (0.06)	2.4 (0.35)	2.1 (0.32)	11.0
41-50	2.5 (0.12)	5.1 (0.05)	3.9 (0.76)	2.1 (0.62)	13.6
> 50	2.2 (0.001)*	3.8 (0.02)*	1.7 (0.48)	1.0 (0.49)	8.7
Education level					
Primary school	1.1 (0.06)	1.4 (0.12)	2.2 (0.01)*	0.5 (0.29)	5.2
Secondary school	3.5 (0.08)	14.9 (0.56)	7.3 (0.05)	4.9 (0.89)	30.6
University	6.2 (0.02)*	24.9 (0.26)	9.7 (0.02)*	8.4 (0.59)	49.2
Career					
Military personnel	2.7 (0.05)	6.0 (0.05)	2.2 (0.06)	1.4 (0.23)	12.3
Government officer	0.8 (0.03)*	2.2 (0.01)*	1.1 (0.08)	0.8 (0.26)	4.9
Employee	0.5 (0.37)	5.5 (0.05)	2.7 (0.55)	1.7 (0.90)	10.4
Business	0.5 (0.82)	1.4 (0.08)	1.1 (0.65)	1.0 (0.12)	4.0
Housewife	1.0 (0.76)	2.1 (0.19)	1.7 (0.04)*	0.5 (0.40)	5.3
Student	4.1 (0.58)	22.9 (0.27)	8.2 (0.05)	7.6 (0.53)	42.8
Others	1.2 (0.64)	1.0 (0.12)	2.1 (0.42)	0.8 (0.32)	5.1

* = $p < 0.05$

Table 4. The frequencies of the well known indications of herbal medicines

Herbal medicines	Well-known indications of herbal medicines	Frequency (%)
Zingiber officinale	Relief of gastric distress	73.2
Andrographis paniculata	Relief of sore throat	52.4
Zingiber cassumunar	Decrease of edema from mild trauma or injury	50.2
Capsicum frutescens	Increase of digestion *	44.1
Curcuma longa	Antiflatulant	43.8
Clinacanthus nutans	Treatment of herpes simplex	25.8
Centella asiatica	Wound healing in mouth	20.4
Cassia alata	Laxative	16.8

*unofficial indication in EM

Malaysian (33.9%) or American (18.6%)[3,7]. Women were more likely to suggest others to use herbal medicines than men did. This finding was in agreement with the study of Litman et al, indicating that female nature prone to serve their family member[8]. Most of government officers had positive attitude to use the drug items and usually purchased them from hospital. This may result from all of the money spent for herbal medicines, officially listed in EM were refundable.

The finding of rather high percentage of media exposure, inadequate knowledge about the herbal medicine as well as inappropriate information of some drug items obtaining among these subjects indicated that the medias were not used effectively to provide appropriate information of herbal medicines for consumers. As the association between media exposure

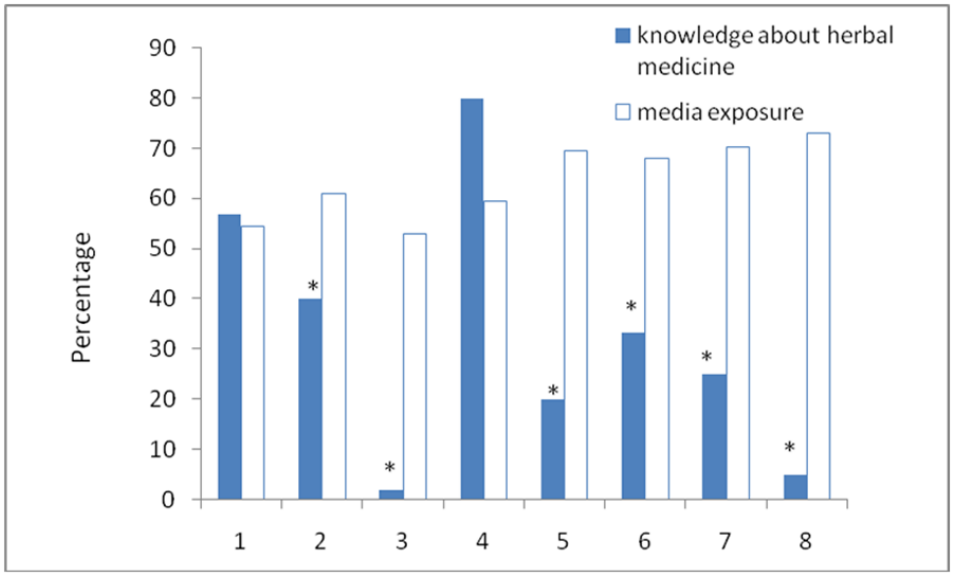

Fig. 1 Relationship between knowledge about herbal medicines and media exposure.
1 = *Curcuma longa*, 2 = *Zingiber officinale*, 3 = *Cassia alata*, 4 = *Andrographis paniculata*, 5 = *Centella asiatica*, 6 = *Clinacanthus nutans*, 7 = *Capsicum frutescens*, 8 = *Zingiber cassumunar*, *p < 0.05 versus the knowledge of *Andrographis paniculata*.

and several careers of subjects reflected that mass media including newspaper, radio, television, magazine and internet were the most important sources to provide information of herbal medicines. Therefore, proper information should be promoted through proper media for each group of population in order to enhance positive attitude and facilitate appropriate drug use of consumers.

Moreover, subjects with high education level usually refused herbal medicine treatment by physicians. This finding differed from that of the large 14-country European survey, demonstrating that cancer patient with high education level were more likely to use herbal medicine[9]. As this may due to several potential factors such as different kind of subjects or physicians may have either negative attitude or lack of drug knowledge. Therefore, appropriate education about herbal medicine in medical curricula could enable physicians to improve confidence in prescribing herbal medicines and to advise their patients about herbal medicines properly.

Conclusion

It was found that only 28.6% of subjects used herbal medicines listed in the National List of Essential Medicine 2008. Almost all of herbal medicines (7 out of 8) were well-known about their indications by less than 55% of total subjects. Among all well-known indications, the relieve of gastric distress by *Zingiber officinale* was the most well-known one (73.2%). The impact of ineffective media was more likely to influence consumer's knowledge and behavior. Promotion on various medias with proper information could help increase appropriate drug use and consumers' safety. Besides, integrated education of herbal medicine in medical curricula could enable physicians to have a higher degree of confidence in herbal medicine treatment.

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ยาจากสมุนไพร: ปัจจัยกระทบและความชุกในการใช้ของประชากรไทยในกรุงเทพมหานคร

นิสามณี สัตยาบัน, สุเพ็ญ ภัทรกิจวานิช, สุภัททา เต็มบุญเกียรติ, ธิษณาภา วุฒิรณฤทธิ์, จีรานุช ตันคณิตเลิศ

ภูมิหลัง: *ปัจจุบันมีการใช้ยาจากสมุนไพรมากขึ้น ส่วนหนึ่งเป็นผลจากองค์การอนามัยโลกได้ให้ประเทศต่าง ๆ ส่งเสริมการใช้ยาจากสมุนไพรเข้าสู่ระบบสาธารณสุขมูลฐานมากขึ้น ของประเทศไทยได้บรรจุยาจากสมุนไพรเข้าไว้ในบัญชียาหลักแห่งชาติ ปี พ.ศ. 2552 ทั้งหมด 8 รายการ แต่การศึกษาติดตามผลทางด้านนี้ยังมีน้อยมาก*

วัตถุประสงค์: *เพื่อสำรวจสภาพการใช้ยาจากสมุนไพรเหล่านี้ ของประชากรในกรุงเทพมหานคร และศึกษาถึงปัจจัยที่ส่งผลกระทบต่อพฤติกรรมการซื้อ และประเมินความรู้และทัศนคติเกี่ยวกับยาจากสมุนไพรดังกล่าว*

วัสดุและวิธีการ: *เป็นการศึกษาเชิงพรรณนาโดยทำการสุ่มกลุ่มประชากรให้ตอบแบบสอบถามจำนวน 631 ฉบับ และวิเคราะห์ข้อมูลด้วยโปรแกรม SPSS*

ผลการศึกษา: *พบว่า 28.6% ของผู้กรอกแบบสอบถามทั้งหมดมีประสบการณ์การใช้ยาจากสมุนไพรในบัญชียาหลักแห่งชาติ ปี พ.ศ. 2552 ผู้สูงอายุ (> 50 ปี) และข้าราชการมักซื้อยาจากสมุนไพรจากโรงพยาบาล และจากร้านขายยา ขณะที่กลุ่มแม่บ้านซื้อยาจากห้างสรรพสินค้า และยังพบว่ากลุ่มข้าราชการมีทัศนคติที่ดีมากต่อการใช้ยาจากสมุนไพร จากการประเมินความรู้เกี่ยวกับยาจากสมุนไพรพบว่า ผู้กรอกแบบสอบถามรู้เกี่ยวกับสรรพคุณของยาจากสมุนไพร 7 ใน 8 ชนิด น้อยกว่า 55% และมีเพียงสรรพคุณของขมิ้นชันที่ใช้ลดอาการท้องอืด ท้องเฟ้อ ที่มีผู้รู้ถึง 73.6% แม้ความรู้ของยาจากสมุนไพรยังต่ำแต่กลับพบว่ามีการใช้สื่อต่าง ๆ มากถึง 55-70% เกือบทุกอาชีพ และโดยเฉพาะกลุ่มผู้ที่มีการศึกษาสูงซึ่งสะท้อนให้เห็นว่าสื่อค่อนข้างมีอิทธิพลต่อความรู้ และพฤติกรรมการใช้ยาจากสมุนไพรอย่างมาก*

สรุป: *28.6% ของผู้กรอกแบบสอบถามทั้งหมดใช้ยาจากสมุนไพรในบัญชียาหลักแห่งชาติ และมีความรู้เกี่ยวกับสรรพคุณของยาน้อยขณะที่มีการใช้สื่อต่าง ๆ มาก ดังนั้นการปรับปรุงการใช้สื่อต่าง ๆ ให้มีคุณภาพ และเหมาะสมร่วมกับการบรรจุเรื่องยาจากสมุนไพรเข้าในหลักสูตรแพทยศาสตร์จะช่วยเพิ่มความปลอดภัย และการใช้ยาอย่างถูกต้องของผู้บริโภค*