

# Comparing KAP regarding Halal pharmaceuticals among general practitioners and hospital doctors

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## ABSTRACT

There is an increasing awareness amongst Muslim consumers to avoid all items containing non-Halal ingredients including medications. General practitioners and hospital doctors, in their practice encounter with the patients of different severity of illness, and accordingly their exposure to different categories of medicines will also be different. It therefore, needed for a study to compare knowledge, attitude and perception (KAP) of general practitioners and hospital doctors regarding Halal pharmaceuticals. This was a cross-sectional study using a structured, self-administered questionnaire to compare the knowledge, attitude and perception regarding Halal pharmaceuticals, among general practitioners and doctors working in various government hospitals in Malaysia. Results revealed that significant difference in the perception of general practitioners and hospital doctors was found. Significant difference was also found in some of statements of knowledge and attitude. This is concluded that general practitioners and hospital doctors differ in knowledge, attitude and perception regarding Halal pharmaceuticals.  $P \geq 0.05$  was taken as statistically significant.

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## INTRODUCTION

Halal is an Arabic word which means “lawful,” “permissible” under Islamic law ((Khattak, *et al.*, Nasaruddin, *et al.*, Husain *et al.*, 2012). The opposite of Halal is “Haram” which means “unlawful”, “prohibited”, “forbidden”. The opposite of Halal is “Haram” which means “unlawful”, “prohibited”, “forbidden” (Riaz and Chaudry, 2004, MS: 1500, 2004). Halal and Haram are universal terms that apply to all facets of life. However, this study will adapt these terms to refer only to pharmaceutical products that are deemed permissible for consumption of Muslims. Halal is a well known word in the entire Muslim world. However as the Muslim population is expanding in other continents, this word has come to be used so commonly in the day to day life that even the non-islamic world has become cognizant of this terminology. This has resulted in Halal signs, at shops and food products, in America and Europe, catering for the religious beliefs and needs of the Muslim consumers. Medicines play a pivotal role in the process of human development as their rational use can decrease the morbidity and mortality and improves the quality of life (Cohen-Kohler, 2007).

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A drug/medicine is composed of a combination of active ingredients, and excipients. These substances are obtained from a variety of sources- animals, plants or synthetic origin (Geraldine *et al.*, 2004, Hoesli & Smith, 2011). In case of animal source, it may be porcine, dead animal or blood. All these are Haram/forbidden for Muslims as mentioned in the Holy Quran (Al-Quran, accessed on 2012 March 2). It is evident that, not only, consuming Halal food but also consuming Halal medication is important because it forms a major part and behavior of being a good practicing Muslim. It is pertinent to mention that all old religions of the world like Hinduism, Judaism and Christianity also command certain religious restrictions and bindings on their followers in the consumption of foods and drinks (Geraldine *et al.*, 2004, Easterbrook & Maddern, 2008). They may use other terminologies to define these restrictions but the main sentiment is the same. Therefore it would be pertinent to look into various items of human consumption, including medicines, and their variants, to determine admissibility according to individual beliefs. As majority of Malaysian population is Muslim (Statistics Malaysia, 2010), there are many government and non government organizations which are playing an active role to ensure provision of Halal foods and pharmaceuticals to Muslim consumers.

General practitioners and hospital doctors, in their practice encounter with the patients of different severity of illness, and accordingly their exposure to different categories of medicines will also be different. To the best of our knowledge no study has been done so far to compare the knowledge, attitude and perception of general practitioners and hospital doctors regarding Halal pharmaceuticals. Therefore the main objective of this study is to compare levels of knowledge, attitude and perception among general practitioners and hospital doctors.

## METHODOLOGY

### Type of study design

A descriptive, cross-sectional study design was adopted for this research project by using structured, validated, self-administered questionnaire. For general medical practitioners, a postal survey was conducted across Malaysia.

### Study location & setting

Study settings included various government hospitals across Malaysia and systematic randomly selected registered clinics in the country.

### Inclusion & exclusion criteria

General medical practitioners registered with Malaysian Medical Council and all medical doctors working in different departments (except those who were not involved in prescribing i.e. radiologists, pathologists etc;) in selected government hospitals, on duty during the study period and willing to participate in the study (Wong *et al.*, 2013), were recruited as 'study participants'. Whereas those not registered with Malaysian Medical Council, or those who refused to give consent were excluded from this study.

### Sample size calculation

A list of addresses of 6,442 clinics registered with Malaysian Medical Council was obtained from Ministry of Health, Malaysia. For general medical practitioners, a sample size of 545 was calculated by 'Raosoft online sample size calculator' with a confidence level of 95% and margin of error 5% (McCrum-Gardner E, 2010). For doctors working in hospitals, convenience sampling technique was used. All doctors, involved in prescribing medicines, in selected hospitals, were contacted. In total, 482 doctors were recruited as participants.

### Study instrument

After extensive literature review, a self administered questionnaire was designed to conduct this study. The questionnaire was validated by a panel of experts which was composed of eight (8) senior academic researchers in the field of pharmacy and was restructured according to their recommendations. Initially a pilot study was conducted to determine the reliability of the updated questionnaire. Cronbach's alpha was applied to test validity and internal consistency of the

questionnaire (De Bourdeaudhuij, 2005). Final modifications were made based upon the results of pilot study. The final questionnaire consisted of four parts. The first part of the questionnaire was on respondents' demographic information including age, gender, race, religion, nationality, current position (general practitioner, medical officer, house officer or specialist/consultant), current area of practice, country of basic educational degree, basic medical qualification, postgraduate medical qualification, and finally the experience. Second part comprised of nine statements to evaluate the knowledge of respondents towards Halal pharmaceuticals. Third part consisted of 11 statements for appraising perception towards Halal pharmaceuticals and final part had nine statements about the attitude of respondents concerning Halal pharmaceuticals. All questions were close ended, except one at the end was open-ended question seeking the participants 'general comments'. For knowledge statements respondents were asked to choose "Yes" or "No" options. Affirmative answer (yes) was scored one (1) while negative answer (no) was scored zero. Hence the minimum and maximum score for knowledge could be 0 to 9. A five point Likert scale was used for perception and attitude statements starting from "strongly agree" to "strongly disagree", which was scored as; strongly agree = 5, agree = 4, neutral = 3, disagree = 2 and strongly disagree = 1. Thus the minimum and maximum possible score for attitude and perception was; 1 to 45, and 1 to 55, respectively. Total KAP score could be 109.

### Data collection procedure

For the distribution of questionnaires, survey research guidelines were followed. Systematic randomly selected clinics in Malaysia were included for sending questionnaires by post. Questionnaire along with explanatory statement and a return self-addressed, postage paid envelope were sent to systematic randomly selected clinics. All questionnaires were sent by normal mail. Respondents were requested to return the questionnaire within 2 weeks. First reminder was sent to all selected clinics, excluding those who had responded and to those whose letters were returned due to closed clinics or changed addresses (Bjertnaes *et al.*, 2007). A period of 2 weeks was again allowed for return of the questionnaires after the first reminder. A second reminder was sent to all non-responding clinics. Responses were collected upto 15 days after the second reminder. After 6 weeks any further returned questionnaires were not included in the study. Explanatory statement and a return self-addressed, postage paid envelope were sent each time. Those questionnaires which were returned unopened and stamped on the envelope "addressee has moved" or 'closed clinics' were excluded from the calculation of response rate (Ismail and Abidin, 2009). To maximize the response rate, each mailed survey was accompanied by a cover letter stating the survey objectives, assuring confidentiality of the responses, agreeing to share the findings, giving the approximate time needed to complete the questionnaire and providing a pre-addressed postage-paid return envelope (Rezaee and Burton, 1997). In government hospitals, doctors were approached through head of the departments (Oshikoya and Awobusuyi, 2009) and

were requested to return the completed questionnaires within two weeks. Reminders were sent after one week (Desai *et al.*, 2011). Respondents were assured for confidentiality of their personal information in the explanatory statement. No incentives were offered to any of the respondents (Lie and Boker, 2006). The completion of the questionnaire by respondents was taken as their consent to participate in the study.

### Data analysis

After collecting questionnaires, data was entered in SPSS version 18. After data cleaning, normality of data was checked by Kolmogorov-Smirnov test (Pallant, 2011). Descriptive statistics (mean, standard deviation, frequency, percentage, median, inter quartile range) was applied to summarize the data (Tiralongo and Wallis, 2008). The Mann-Whitney U Test was applied to test for difference between general practitioners and hospital doctor's knowledge, attitude and perception (Pallant, 2011).  $P \geq 0.05$  was taken as statistically significant.

## RESULTS

### Respondent's demographics

A total of 407 respondents participated in the survey, and analysis was performed on all of 407 forms. Among general practitioners, a total of 164 replied with a response rate of 30%. Whereas 243 doctors working in government hospitals participated in the study with a response rate of 50%.

### Comparing knowledge regarding Halal pharmaceuticals among general practitioners and hospital doctors

Comparison between general practitioners and hospital doctor's knowledge regarding Halal pharmaceuticals is depicted in Table-1 and Table-4. Results revealed that there is no significant difference in the level of knowledge (regarding Halal pharmaceuticals) between general practitioners (Md = 8, n =161) and hospital doctors (Md = 6, n = 244),  $U = 19306.500, z = -0.307, p = 0.759$

### Comparing regarding attitude Halal pharmaceuticals among general practitioners and hospital doctors

Comparison between general practitioners and hospital doctor's attitude regarding Halal pharmaceuticals is depicted in Table-2 and Table-4. Results revealed that there is no significant difference in the level of attitude (regarding Halal pharmaceuticals) between general practitioners (Md = 48, n =162) and hospital doctors (Md = 45, n = 244),  $U = 18808.500, z = -0.827, p = 0.408$ .

### Comparing perception regarding Halal pharmaceuticals among general medical practitioners and hospital doctors

Comparison between general practitioners and hospital doctor's perception regarding Halal pharmaceuticals is depicted in Table-3 and Table-4. Results revealed that there is significant

difference in the level of perception (regarding Halal pharmaceuticals) between general practitioners (Md = 35, n =162) and hospital doctors (Md = 34, n = 244),  $U = 16790.500, z = -2.575, p = 0.010$ . The direction of the difference is towards general practitioners which have higher mean rank.

## DISCUSSION

The study aimed to compare the knowledge, attitude and perception of general practitioners and hospital doctors on the issues surrounding Halal pharmaceuticals in Malaysia. Intensive literature review found no such study which is conducted to compare the knowledge, attitude and perception among general practitioners and hospital doctors. In the present age, medicines have become a necessity to maintain our health. Usually there are three players in this context; doctors, pharmacists and consumers. Consumers usually cannot decide which medicine is suitable for them. This is then the role of the doctors to choose the most suitable medication for his/her patient keeping in mind, the religious beliefs of the patient. This is an expected and undeniable finale that doctors are perceived as one of the most knowledgeable health care practitioners on drugs and medications. In fact, closer patient-doctor relationship has resulted in consumers to perceive that the advice of doctor is reliable. Hence, doctor's opinion becomes an important factor when it comes to the drug decision making process. This study tried to compare the knowledge of general practitioners and doctors working in hospitals, about Halal pharmaceuticals. Study showed that significant difference was found in some of knowledge statements while not in others. Significant difference was found in knowledge statement "Are you aware of the term/word "Halal pharmaceuticals" and the direction of difference was towards general practitioners, as they had higher mean rank. Significant difference in knowledge was also found in the statement "Do you know that it is ethical obligation for a practitioner to take consent from the patient before prescribing any medicine which has any non-Halal content", and the difference was in the direction of hospital doctors. Significant difference was not found in total knowledge score. Study further showed that significant difference was found in some statements of attitude while not in others. Significant difference was found in attitude statement "I discuss with patients about forbidden/Haram ingredients of drugs" and hospital doctors having higher mean rank. While general practitioners had higher rank in the statement "I consider patient's religious beliefs when designing a treatment regimen". Furthermore, significant difference was found in attitude statement "I prefer Halal medicines in my practice" and general practitioners had higher rank. General practitioners also had higher rank in the statement "I recommend the purchase of Halal alternatives, which may be more expensive". Significant difference was not found in total attitude score. Study further found that significant difference was found in total perception score among general practitioners and hospital doctors and the direction of difference was towards general practitioners, getting higher mean rank.

**Table 1:** Comparing knowledge among general practioners and hospital doctors.

Statements	Position	N	Mean Rank	Sum of Ranks	Mann-Whitney U	Z	p
Are you aware of the term/ word "Halal"?	General practioner	161	201.49	32440.00	19399.000	-.950	.342
	Hospital doctor	243	203.17	49370.00			
Are you aware of the term/word "Haram"?	General practioner	161	204.96	32999.00	19165.000	-.827	.408
	Hospital doctor	243	200.87	48811.00			
Are you aware of the term/word "Halal pharmaceuticals"?	General practioner	161	213.38	34354.00	17810.000	-2.141	.032*
	Hospital doctor	243	195.29	47456.00			
Do you know that Muslim patients need Halal medicines?	General practioner	159	198.92	31628.50	18908.500	-.562	.574
	Hospital doctor	241	201.54	48571.50			
Do you know that dead animals, blood, pork and Alcohol are Haram for Muslims to use in any form (food, medication etc)?	General practioner	161	202.24	32560.00	19443.000	-.083	.934
	Hospital doctor	242	201.84	48846.00			
Do you know that ingredients of some drugs/medicines are derived from porcine and dead animals?	General practioner	161	197.43	31787.00	18746.000	-1.701	.089
	Hospital doctor	243	205.86	50023.00			
Do you know that resources are available to offer Halal alternatives of non Halal drugs?	General practioner	160	197.60	31615.50	18735.500	-.610	.542
	Hospital doctor	241	203.26	48985.50			
Do you know that it is ethical obligation for a practitioner to take consent from the patient before prescribing any medicine which has any non-Halal content?	General practioner	159	186.58	29667.00	16947.000	-2.895	.004*
	Hospital doctor	243	211.26	51336.00			
Do you know that most of the doctors are aware of the presence of potentially forbidden animal-derived ingredients in medicines?	General practioner	160	201.76	32282.00	19318.000	-.050	.960
	Hospital doctor	242	201.33	48721.00			

\*P value ≤ 0.05 is significant

**Table 2:** Comparing attitude among general practioners and hospital doctors.

Statements	Position	N	Mean Rank	Sum of ranks	Mann-Whitney U	z	p
I discuss with patients about forbidden/Haram ingredients of drugs.	General practioner	161	183.28	29507.50	16466.500	-2.964	.003*
	Hospital doctor	244	216.01	52707.50			
I feel moral obligation to disclose the exact source of non-Halal ingredients to the patient (e.g alcohol in syrups/elixirs and gelatin in capsules).	General practioner	161	203.79	32810.50	19514.500	-.120	.904
	Hospital doctor	244	202.48	49404.50			
I take consent from patients, if I know the drug is non-Halal.	General practioner	157	197.35	30984.50	18581.500	-.536	.592
	Hospital doctor	244	203.35	49616.50			
I consider patient's religious beliefs when designing a treatment regimen.	General practioner	161	217.44	35007.50	17317.500	-2.188	.029*
	Hospital doctor	244	193.47	47207.50			
I make an effort to search for any available Halal alternatives.	General practioner	161	215.21	34649.50	17514.500	-1.892	.059
	Hospital doctor	243	194.08	47160.50			
I educate the patient regarding Halal ingredients.	General practioner	161	202.07	32533.00	19492.000	-.138	.890
	Hospital doctor	244	203.61	49682.00			
I prefer Halal medicines in my practice.	General practioner	160	223.05	35688.50	16231.500	-2.998	.003*
	Hospital doctor	244	189.02	46121.50			
I recommend the purchase of Halal alternatives, which may be more expensive.	General practioner	161	218.98	35256.50	17068.500	-2.335	.020*
	Hospital doctor	244	192.45	46958.50			
I feel that medical representatives are a good source of information about sources & ingredients of drugs for me.	General practioner	160	212.47	33995.00	17765.000	-1.553	.120
	Hospital doctor	243	195.11	47411.00			

\*P value ≤ 0.05 is significant

**Table 3:** Comparing perception among general practioners and hospital doctors.

Statements	Position	N	Mean Rank	Sum of ranks	Mann-Whitney U	z	p
Patient has a right to ask information about sources & ingredients of medicines.	General practioner	162	218.02	35319.00	17412.000	-2.364	.018*
	Hospital doctor	244	193.86	47302.00			
It is important for prescriber to explain about the sources & ingredients of medicine as maximum as possible and encourage the patients to ask questions.	General practioner	162	188.66	30563.00	17360.000	-2.210	.027*
	Hospital doctor	243	212.56	51652.00			
It is not a common practice to inform the patients about sources of the medicines.	General practioner	160	224.97	35994.50	15925.500	-3.333	.001*
	Hospital doctor	244	187.77	45815.50			
Drug manufacturers should provide prescribers with a list of their products containing animal-derived ingredients	General practioner	162	222.52	36047.50	16521.500	-3.070	.002*
	Hospital doctor	243	189.99	46167.50			
Doctors should be educated about the sources of medicines.	General practioner	160	210.09	33614.00	18306.000	-1.181	.238
	Hospital doctor	244	197.52	48196.00			
Patient's religious beliefs need to be considered while prescribing medicines.	General practioner	162	217.89	35298.50	17108.500	-2.397	.017*
	Hospital doctor	242	192.20	46511.50			
Patient's religious beliefs	General practioner	161	211.19	34001.00	18324.000	-1.249	.212
	Hospital doctor	244	197.60	48214.00			
Pharmaceutical manufacturers should be sensitive towards the requirement of patients and where ever possible should produce Halal medicines.	General practioner	162	228.96	37091.50	15639.500	-3.893	.000*
	Hospital doctor	244	186.60	45529.50			
Drug companies should clearly mark medication packaging with easy-to-spot Halal/non halal labels.	General practioner	162	225.33	36503.00	16228.000	-3.376	.001*
	Hospital doctor	244	189.01	46118.00			
Clear and well explained guidelines are need of the healthcare professionalsto navigate religious conflicts.	General practioner	161	215.60	34712.00	17613.000	-1.940	.052
	Hospital doctor	244	194.68	47503.00			
Healthcare professionals need to define medical necessity and explore existence of Halal alternatives.	General practioner	162	209.99	34018.00	18713.000	-.990	.322
	Hospital doctor	244	199.19	48603.00			

\*P value ≤ 0.05 is significant

**Table 4:** Comparison of KAP scores between general practitioners and hospital doctors.

Variable	Position	N	Median	Mean Rank	U *	z	p
Knowledge total score	General practitioner	161	8	205.08	19306.500	-.307	.759
	Hospital doctor	244	8	201.62			
Attitude total score	General practitioner	162	48	209.40	18808.500	-.827	.408
	Hospital doctor	244	45	199.58			
Perception total score	General practitioner	162	35	221.85	16790.500	-2.575	.010
	Hospital doctor	244	34	191.31			

\* Mann-Whitney U, Note: N =observed values; missing values are excluded

## CONCLUSION

It can be concluded that there is significant difference in the knowledge and attitude of general practitioners and doctors working in hospitals, in some areas, while are equally aware and have same attitude in other areas. It is further concluded that significant difference is found in perception of general practitioners and doctors working in hospitals.

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