



## COMPARING KAP AMONG COMMUNITY PHARMACISTS AND HOSPITAL PHARMACISTS REGARDING HALAL PHARMACEUTICALS

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### ABSTRACT

There is an increasing awareness amongst Muslim consumers to avoid all items containing non-Halal ingredients including medications. Community pharmacists and hospital pharmacists, 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 KAP of community pharmacists and hospital pharmacists regarding Halal pharmaceuticals. This was a cross-sectional study using a structured, self-administered questionnaire to compare the knowledge, attitude & perception regarding Halal pharmaceuticals, among community pharmacists and pharmacists working in various government hospitals in Malaysia. Results revealed that significant difference was found in the attitude of community pharmacists and hospital pharmacists. No significant difference was found in knowledge and perception. This is concluded that community pharmacists and hospital pharmacists differ in attitude, while having same knowledge and perception regarding Halal pharmaceuticals.  $P \geq 0.05$  was taken as statistically significant.

**Key words:** Knowledge, Attitude, Perception, KAP, Halal, pharmaceuticals

### INTRODUCTION

Halal is an Arabic word which means “lawful,” “permissible” under Islamic law<sup>1-3</sup>. The opposite of Halal is “Haram” which means “unlawful”, “prohibited”, “forbidden”. The opposite of Halal is “Haram” which means “unlawful”, “prohibited”, “forbidden”<sup>4,5</sup>. 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 as well as improve the quality of life<sup>6</sup>. 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<sup>7,8</sup>. 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<sup>9-11</sup>. It is evident that, not only, consuming Halal food but also consuming Halal medication is important because it forms a major part and behaviour 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<sup>12,13</sup>. 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<sup>14</sup>, 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. Community pharmacists and hospital pharmacists, 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 community pharmacists and hospital pharmacists regarding Halal pharmaceuticals. Therefore the main objective of this study is to compare levels of knowledge, attitude and perception among community pharmacists and hospital pharmacists.

## **METHODOLOGY**

### **Study design**

A cross-sectional study design was adopted for this research project by using structured, validated, self-administered questionnaires. For community pharmacists, a postal survey was conducted across Malaysia.

### **Study location & setting**

Study settings included various government hospitals and systematic randomly selected, community pharmacies across Malaysia.

### **Inclusion & exclusion criteria**

A pharmacist registered with Malaysian Pharmacy Council, all pharmacists working in selected government hospitals, on duty during the study period and willing to participate in the study<sup>15</sup> were recruited as 'study participant'. Whereas those not registered with Malaysian Pharmacy Council, or refused to give consent were excluded from this study.

### **Sample size calculation**

A list of addresses of 1536 pharmacies registered with Malaysian Pharmacy Council was obtained from Ministry of Health Malaysia. A sample size of 473 pharmacies was calculated by 'Raosoft online sample size calculator'<sup>16</sup>. For pharmacists working in hospitals, convenience sampling technique was used. All pharmacists working in selected hospitals at the time of survey were approached. In total, 205 hospital pharmacists were approached.

### **Study instrument**

After extensive literature review, a self administered questionnaire was designed to conduct this study. The questionnaire was validated by the panel of experts which was composed of eight (8) senior academic researchers in the field of pharmacy, and was updated according to their recommendations. A pilot study was conducted to evaluate the reliability of the updated questionnaire. Cronbach's alpha was applied to test validity and internal consistency of the questionnaire<sup>17</sup>. 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, country of basic educational degree, highest qualification, and finally the experience. Second part had nine statements to evaluate the knowledge of respondents. Third part consisted of 12 statements for evaluating perception and final part had nine statements about the attitude of respondents about 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. Positive answer (yes) was scored one (1) while negative answer (no) was scored zero<sup>18</sup>. Hence the minimum and maximum score for knowledge can 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<sup>19</sup>. Hence the minimum and maximum score for attitude and perception can be; 1 to 45, and 1 to 60, respectively. Total KAP score can be 114.

#### **Data collection procedure**

For the distribution of questionnaires, survey research guidelines were followed. Systematic randomly selected pharmacies in Malaysia were included for sending questionnaires by post. Postal questionnaires are widely used to collect data in health research and are often the only financially viable option when collecting information from large, geographically dispersed populations<sup>20</sup>. Questionnaires along with explanatory statement and a return self-addressed, postage paid envelope were sent to systematic randomly selected pharmacies by normal mail. Respondents were requested to return the questionnaire within 2 weeks. First reminder was sent to all selected pharmacies, excluding those who had responded and to those whose letters were returned due to closed pharmacies or changed addresses<sup>21</sup>. 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. Postal paper stamps were supplied with the reply envelopes, as it was considered a better method of increasing response compared to franked prepaid business replies<sup>22</sup>. Those questionnaires which were returned unopened, stamped on the envelope "addressee has moved" or 'closed pharmacies' were excluded from the calculation of response rate<sup>23</sup>. To maximize the response rate, each survey mailed 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<sup>24</sup>. Respondents were assured for confidentiality of their personal information in the explanatory statement. No incentives were offered to any of the respondents<sup>25</sup>. 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<sup>26</sup>. Descriptive statistics was applied to summarize the data<sup>27</sup>. Non-parametric tests were applied. The Mann-Whitney U Test was applied to test for difference between community pharmacist's and hospital pharmacist's knowledge, attitude and perception<sup>26</sup>.  $P \geq 0.05$  was taken as statistically significant.

## **RESULTS**

### **Respondent's demographics**

A total of 310 respondents participated in the survey, and analysis was performed on all of 310 forms. Among community pharmacists, a total of 175 replied with a response rate of 37%. Where as 135 pharmacists working in government hospitals participated in the study with a response rate of 66%.

### **Comparing knowledge regarding Halal pharmaceuticals among community pharmacists and hospital pharmacists**

Comparison between community pharmacists and hospital pharmacist'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 community pharmacists (Md = 9, n = 175) and hospital pharmacists (Md = 9, n = 135),  $U = 11342.500$ ,  $z = -0.682$ ,  $p = 0.495$

### **Comparing regarding attitude Halal pharmaceuticals among community pharmacists and hospital pharmacists**

Comparison between community pharmacists and hospital pharmacist's attitude regarding Halal pharmaceuticals is depicted in Table-2 and Table-4. Results revealed that there is significant difference in

the level of attitude (regarding Halal pharmaceuticals) between community pharmacists (Md = 36, n =175) and hospital pharmacist (Md = 34, n = 135), U =8241.000, z = -4.594, p<0. 001. The direction of the difference is towards community pharmacists which have higher mean rank.

**Comparing perception regarding Halal pharmaceuticals among community pharmacists and hospital pharmacists**

Comparison between community pharmacists and hospital pharmacist’s perception regarding Halal pharmaceuticals is depicted in Table-3 and Table-4. Results revealed that there is no significant difference in the level of perception (regarding Halal pharmaceuticals) between community pharmacists (Md = 53, n =175) and hospital pharmacists (Md = 53, n = 135), U =, 11070.000, z = -0.975, p= 0.330.

**Table 1: Comparing knowledge among community pharmacists and hospital pharmacists**

Statements	Position	N	Mean Rank	Sum of Ranks	Mann-Whitney U	Z	p
Are you aware of the term/ word “Halal”?	Hospital pharmacist	135	154.72	21042.00	11726.000	-0.798	0.425
	Community pharmacist	175	156.11	27163.00			
Are you aware of the term/word “Haram”?	Hospital pharmacist	135	151.23	20567.00	11251.000	-1.138	0.255
	Community pharmacist	175	158.84	27638.00			
Are you aware of the term/word “Halal pharmaceuticals”?	Hospital pharmacist	135	149.73	20363.00	11047.000	-1.573	0.116
	Community pharmacist	175	160.01	27842.00			
Do you know that Muslim patients need Halal medicines?	Hospital pharmacist	135	154.82	21055.50	11739.500	-0.098	0.922
	Community pharmacist	174	155.14	26839.50			
Do you know that dead animals, blood, pork and Alcohol are Haram for Muslims to use in any form (food, medication etc)?	Hospital pharmacist	135	156.24	21249.00	11731.000	-0.290	0.772
	Community pharmacist	175	154.92	26956.00			
Do you know that ingredients of some drugs/medicines are derived from porcine and dead animals?	Hospital pharmacist	135	157.46	21414.00	11430.000	-1.189	0.234
	Community pharmacist	174	153.07	26481.00			
Do you know that resources are available to offer Halal alternatives of non Halal drugs?	Hospital pharmacist	135	157.03	21356.00	11624.000	-0.356	0.721
	Community pharmacist	175	154.30	26849.00			
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?	Hospital pharmacist	135	161.02	21899.00	11081.000	-1.963	0.050
	Community pharmacist	175	151.18	26306.00			
Do you know that most of the pharmacists are aware of the presence of potentially forbidden animal-derived ingredients in medicines?	Hospital pharmacist	135	160.14	21779.50	11064.500	-1.327	0.185
	Community pharmacist	174	150.96	26115.50			

P value ≤ 0.05 is significant

**Table 2: Comparing attitude among community pharmacists and hospital pharmacists**

Statements	Position	N	Mean Rank	Sum of ranks	Mann-Whitney U	z	p
I discuss with patients about forbidden/Haram ingredients of drugs.	Hospital pharmacist Community pharmacist	135 174	128.83 175.58	17520.50 30374.50	8204.500	-4.759	<0.001
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).	Hospital pharmacist Community pharmacist	135 174	134.80 170.88	18333.00 29562.00	9017.000	-3.715	<0.001
I take consent from patients, if I know the drug is non-Halal.	Hospital pharmacist Community pharmacist	135 174	124.05 179.33	16871.00 31024.00	7555.000	-5.763	<0.001
I consider patient's religious beliefs when designing a treatment regimen.	Hospital pharmacist Community pharmacist	135 175	139.44 168.05	18964.00 29241.00	9648.000	-3.010	0.003
I make an effort to search for any available Halal alternatives.	Hospital pharmacist Community pharmacist	135 175	139.37 168.11	18954.50 29250.50	9638.500	-2.964	0.003
I educate the patient regarding Halal ingredients.	Hospital pharmacist Community pharmacist	135 175	141.18 166.69	19201.00 29004.00	9885.000	-2.620	0.009
I prefer Halal medicines in my practice.	Hospital pharmacist Community pharmacist	135 175	136.97 169.99	18627.50 29577.50	9311.500	-3.373	0.001
I recommend the purchase of Halal alternatives, which may be more expensive.	Hospital pharmacist Community pharmacist	135 175	142.38 165.76	19363.00 28842.00	10047.000	-2.378	0.017
I feel that medical representatives are a good source of information about sources & ingredients of drugs for me.	Hospital pharmacist Community pharmacist	135 175	155.81 155.26	21190.00 27015.00	11790.000	-.057	0.955

\*P value ≤ 0.05 is significant

**Table 3: Comparing perception among community pharmacists and hospital pharmacists**

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.	Hospital pharmacist Community pharmacist	135 175	152.25 158.04	20706.00 27499.00	11390.000	-.724	0.469
It is important for prescriber to explain about the sources & ingredients of medicine as maximum as possible and encourage the patients to ask questions.	Hospital pharmacist Community pharmacist	135 175	153.77 156.85	20913.00 27292.00	11597.000	-.325	0.745
Drug manufacturers should provide prescribers with a list of their products containing animal-derived ingredients	Hospital pharmacist Community pharmacist	135 175	149.64 160.08	20351.50 27853.50	11035.500	- 1.260	0.208
It is not a common practice to inform the patients about sources of the medicines.	Hospital pharmacist Community pharmacist	135 175	160.88 151.30	21879.00 26326.00	11101.000	-.992	0.321
Pharmacists should be educated about the sources of medicines.	Hospital pharmacist Community pharmacist	135 175	150.87 159.12	20518.00 27687.00	11202.000	-.912	0.362
Patient's religious beliefs are considered while dispensing of medicines.	Hospital pharmacist Community pharmacist	135 173	146.82 160.57	19968.00 27618.00	10652.000	- 1.467	0.142
Patient's religious beliefs impact their adherence to drug therapy.	Hospital pharmacist Community pharmacist	135 175	152.59 157.78	20752.00 27453.00	11436.000	-.549	0.583
A list of the most commonly used, animal-derived drugs and their alternatives should be developed.	Hospital pharmacist Community pharmacist	135 175	149.30 160.35	20304.50 27900.50	10988.500	- 1.194	0.233
Pharmaceutical manufacturers should be sensitive towards the requirements of patients and where ever possible should produce Halal medicines.	Hospital pharmacist Community pharmacist	135 175	149.55 160.15	20338.50 27866.50	11022.500	- 1.145	0.252
Drug companies should clearly mark medication packaging with easy-to-spot Halal/non Halal labels.	Hospital pharmacist Community pharmacist	135 175	152.85 157.57	20787.00 27418.00	11471.000	-.530	0.596
Healthcare professionals need to define medical necessity and explore existence of Halal alternatives.	Hospital pharmacist Community pharmacist	135 173	143.27 163.38	19485.00 28101.00	10169.000	- 2.138	0.033
Clear and well explained guidelines are need of healthcare professionals to navigate religious conflicts.	Hospital pharmacist Community pharmacist	135 173	149.85 158.18	20379.00 27207.00	11063.000	- 0.888	0.375

\*P value ≤ 0.05 is significant

**Table 4: Comparison of KAP scores between community pharmacists and hospital pharmacists**

Variable	Position	N	Median	Mean Rank	U *	z	p
Knowledge total score	Hospital pharmacist	135	9	159.10	11342.500	-0.682	0.495
	Community pharmacist	175	9	152.69			
Attitude total score	Hospital pharmacist	135	34	129.10	8241.000	-4.594	<0.001
	Community pharmacist	175	36	176.14			
Perception total score	Hospital pharmacist	135	53	149.90	11070.000	-0.975	0.330
	Community pharmacist	175	53	159.88			

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

## DISCUSSION

The study aimed to compare the knowledge, attitude and perception of community pharmacists and hospital pharmacists 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 community pharmacists and hospital pharmacists.

This study tried to compare the knowledge of community pharmacists and hospital pharmacists, about Halal pharmaceuticals. Study showed that significant difference was found in only one knowledge 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” and the direction of difference was towards community pharmacists, as they had higher mean rank. While no significant difference was found in total knowledge score among community pharmacists and hospital pharmacists.

Study further showed that significant difference was found in total attitude score among community pharmacists and hospital pharmacists and the direction of difference was towards community pharmacists, getting higher mean rank. No significant difference was found in perception score among community pharmacists and hospital pharmacists.

## CONCLUSION

It can be concluded that there is significant difference in the attitude of community pharmacists and hospital pharmacists, while both have same aware and have same perception

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