Original Article

Evaluation of knowledge, attitude, and perception regarding Halal pharmaceuticals, among general medical practitioners in Malaysia

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ABSTRACT

Objective: To evaluate the knowledge, attitude, and perception (KAP) regarding Halal pharmaceuticals, among general medical practitioners in Malaysia. **Materials and Methods:** This was a cross-sectional study, carried out between September 2012 and November 2012 period, using a structured, self-administered questionnaire. Clinics were chosen based on systematic random sampling technique across Malaysia. Descriptive statistics (mean, standard deviation, frequency, percentage, median, and interquartile range) were used to summarize the data. Chi-square and Fisher's exact tests were used as appropriate to assess the association between demographic characteristics, and KAP scores. **Results:** Results revealed that general medical practitioners have a good knowledge and positive attitude and perception towards Halal pharmaceuticals. Mean knowledge score was 7.72 ± 1.65, out of maximum possible score of 9. Mean attitude score was 34.24 ± 6.77 out of maximum score of 45 and mean perception score was 46.98 ± 5.84 out of maximum possible score of 55. Mean overall KAP score out of maximum possible 109 was 88.90 ± 12.75. There was a significant, positive, and fair correlation (0.25-0.5) between knowledge and attitude ($r = 0.443$, $P < 0.001$) and knowledge and perception ($r = 0.332$, $P < 0.001$), while good correlation (0.5-0.75) between attitude and perception ($r = 0.741$, $P < 0.001$). **Conclusion:** It can be concluded that better knowledge of Halal pharmaceuticals is associated with positive attitude towards the use of Halal pharmaceutical products. However, it still remains unknown how this positive attitude influence prescribing practices of general practitioners.

Key words: Attitude, Halal, KAP, knowledge, perception, pharmaceuticals

INTRODUCTION

Halal is an Arabic word which means " lawful", "permissible" under Islamic law. The opposite of Halal is "Haram" which means "unlawful", "prohibited", "forbidden".[1-3] The use of terms Halal and Haram is applicable to almost all aspects of daily life and are not limited to edible items only. However, this study will adapt these terms to refer only to pharmaceutical products, which are deemed permissible for consumption by Muslims.

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Halal is a well-known word in the entire Muslim world and with the expansion of the Muslim population across the globe, this word is well known in non-Muslim countries. This has resulted in Halal signs and logos, at restaurants, cafes, and on the food products in America and Europe, catering for the religious beliefs and needs of the Muslim consumers.

In the Holy Quran, God commands Muslims and all of the mankind to eat of the Halal things. As Al-Quran

says "*O mankind eat of that which is lawful and wholesome and follow not the footsteps of the devil. Lo he is an avowed enemy of you*".[4]

It is a firm belief of all Muslims that Allah is our creator and He is the best judge of what is right for us to consume. It is pertinent to mention that other religions like Hinduism, Judaism, and Christianity have also certain religious restrictions and bindings on their followers with regards to consumption of foods and drinks.[5] They may use other terminologies to define these restrictions but the main sentiment is the same. Therefore, it would be interesting to look into various items of human consumption, including medicines and their variants, to determine admissibility according to individual beliefs.

In almost all the instances a drug/medicine is composed of a combination of active ingredients and excipients. These substances are obtained from a variety of sources including animals, plants, or synthetic origin. In case of animal source, it may be porcine, dead animal, or blood. All these are Haram/forbidden for Muslims as mentioned in the Quranic verses cited below:

"*He hath only forbidden you dead meat and blood and the flesh of swine and that eat on which any other name hath been invoked besides that of Allah, but if one is forced by necessity, without willful disobedience, Allah is forgiver and most merciful*".[6]

''*Forbidden to you (for food) are: Dead meat, blood, the flesh of swine, and that on which hath been invoked a name other than that of Allah*".[7]

From the Quranic verses cited above it would imply 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.

Global scenario

Globally expanding Muslim population has in turn expanded Muslim consumer market manifold. Muslim consumers are increasingly mindful and in search for Halal medicines. In response to the growing demand of Halal medicines, a "Halal friendly retail pharmacy" was opened in a suburb of Lakemba, Sydney, Australia. It has introduced a line of Halal certified medicines. An organization, Halal Certified Medicine (HCM), provides Halal certification for the said purpose based on the ingredients of medicines. For the convenience of Muslim consumers, Halal medicines which are not certified Halal when manufactured, are labeled on the shelves with a "HCM" logo sticker.[8] Now a days most of the countries have an authorized body to deal with issues related to the Halal food including the issuance of Halal certification. However, to date, it is not mandatory for pharmaceutical products to obtain Halal certification.

In Indonesia, the country's highest authority on Islamic affairs, the Indonesian Ulema Council (MUI) established the Food, Drug, and Cosmetics Assessment Agency (LPPOM), which employs experts to analyze products before they are certified Halal.[9] Islamic Food and Nutrition Council of America (IFANCA®), is another example of a Halal certification organization. IFANCA certifies products in all food and related industries including health supplements, packaging materials and food chemicals.[10] The Islamic Religious Council of Singapore (MUIS) is the sole custodian of Halal certification in Singapore.[11] The Halal Monitoring Authority (HMA) is recognized as the most authentic Halal certification body in Canada.[12] Islamic Society of North America (ISNA®) has been providing Halal Certification service to the Muslim communities not only in Canada and the United States of America but also throughout the Muslim world. ISNA® Canada has developed its Halal Logo to be put on the packages certified as Halal.[13]

Current scenario in Malaysia

Since majority of Malaysian population is Muslim and Islam is the official religion,[14] there are many government organizations which are playing active role to ensure provision of Halal foods and Pharmaceuticals in Malaysia. Halal Industry Development Corporation (HDC) coordinates the overall development of the Halal industry and focuses on development of Halal standards, audit and certification.[15] Department of Islamic Development Malaysia (JAKIM) has developed Malaysia's Halal logo and implemented Halal Certification System.[16] Ministry of International Trade and Industry (MITI) promotes Halal products and services.[17] Department of Standards, Government of Malaysia has launched world's first standards, MS 2424:2010 (P) for Halal Pharmaceuticals.[18] These general guidelines address the entire pharmaceutical manufacturing and supply chain—from processing to handling, packaging, labeling, distribution, storage, and display of medicines and health supplies.[18]

Though many government and nongovernmental organizations are playing an active role to ensure provision of Halal foods and pharmaceuticals to Muslims in Malaysia. To the best of our knowledge, no study has

been done so far to evaluate the perception of general medical practitioners regarding Halal pharmaceuticals. Moreover their knowledge on the issues surrounding Halal pharmaceuticals is also not well-studied. Therefore, the main objective of this study was to evaluate Malaysian general medical practitioners' perception and opinions about Halal pharmaceuticals and to identify barriers to prescribe Halal pharmaceuticals.

MATERIALS AND METHODS

Study design

A cross-sectional study design was adopted by using structured, self-administered questionnaires. This was a postal survey conducted across Malaysia between 27 September 2012 and 7 November 2012.

Study site

Malaysia has 16 states with a total population of 28.3 million and a land area of 329,959 km^2. Major ethnic groups are: Bumiputera (67.4%), Chinese (24.6%), Indians (7.3%), and others (0.7%). Islam is the most widely professed religion in Malaysia (61.3%). Other practiced religions are Buddhism (19.8%), Christianity (9.2%), and Hinduism (6.3%).[14] In Malaysia, in total, 32,979 doctors are registered with Malaysian Medical Council.[19] Of which, 22,429 are working in public sector; while 10,550 working in private sector with a doctor to population ratio of 1:859.[19]

Sampling and data collection

A list of addresses of 6,442 clinics registered with Malaysian Medical Council was obtained from Ministry of Health, Malaysia. A sample size of 545 was calculated by Raosoft online sample size calculator with a confidence level of 95% and margin of error 5%. For the distribution of questionnaires, "Guidelines and Standards for Survey Research" were followed. Systematic randomly selected clinics in Malaysia were included for sending questionnaires by post.

Questionnaires along with explanatory statement and a return self-addressed, postage paid envelope were sent to systematic randomly selected clinics (total no. of GPs divided by calculated sample, answer was X. Every Xth no. was chosen systematically from the entire population) 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.[20] 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 up to 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.[21] No incentives were offered to any of the respondents.[22]

Questionnaire design and validation

After extensive literature review, a self-administered questionnaire was designed for this study. The questionnaire was validated by the panel of experts which was composed of eight senior academic researchers and was revised in the light of their recommendations. A pilot study was conducted to evaluate the reliability of the revised questionnaire on 54 general medical practitioners (which is 10% of the total study sample[23]). These were not included in final analysis. Cronbach's alpha was applied to test validity and internal consistency of the questionnaire[24] and $\alpha = 0.6$ was set as the minimum acceptable value for validity. 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 respondent's demographic information including age, gender, race, religion, nationality, current position (GP or specialist), current area of practice, country of basic educational degree, basic medical qualification, postgraduate medical qualification, and finally the experience. Second part had nine statements to evaluate the knowledge of respondents towards Halal pharmaceuticals. Third part consisted of 11 statements for evaluating perceptions towards Halal pharmaceuticals and final part had nine statements about the attitude of respondents about Halal pharmaceuticals. All questions were close-ended, except one at the end for additional comments.

Scoring method for knowledge, attitude, and perception

For knowledge statements respondents were asked to choose "Yes" or "No" options. Correct answer (yes) was scored one (1) while incorrect answer (no) was scored zero (0). A 5-point Likert scale was used for perception and attitude statements (strongly agree = 5, agree = 4, neutral = 3, disagree = 2, and strongly

disagree = 1). Hence, the minimum and maximum score for knowledge, attitude and perception were 0-9, 1-45, and 1-55, respectively. Total KAP score was 109.

Selection criteria and recruitment of respondents

A general medical practitioner registered with Malaysian Medical Council was recruited as 'study participant'.

Ethical consideration

Ethical approval to conduct this study was obtained from the Joint Ethics Committee of School of Pharmaceutical Sciences, USM and Hospital Lam Wah Ee on Clinical Studies and Ministry of Health Malaysia.

Data analysis

After data collection and screening, data was entered in Statistical Package for Social Sciences (SPSS) version 18. After data cleaning, normality of data was checked by Kolmogorov-Smirnov test.[25] Descriptive statistics (mean, standard deviation, frequency, percentage, median, and interquartile range) were used to summarize the data. As data were not normally distributed, so nonparametric tests were applied.[25] Chi-square and Fisher's exact tests were applied to assess the association between demographic characteristics and KAP score. To find relation between knowledge-attitude, knowledge-perception, and attitude-perception of respondents; Spearman's correlation was applied.[25] Correlation was interpreted using Cohen's criteria.[26] *P* value of 0.05 or less was taken as statistically significant.

RESULTS

A total of 164 general medical practitioners replied with a response rate of 30%.

Respondents demographics

Demographic characteristics of the respondents are depicted in Table 1. Mean age of the respondents was 53.51 years (standard deviation (SD) ± 9.47) with age ranging from 28 to 76 years. One hundred and twenty-eight (78%) of the respondents were male and 36 (22%) were females. Sixty-eight (42.5%) were Malay, 57 (35.6%) were Chinese, and 35 (21.9%) Indians. Seventy-four (45.4%) were Muslims. A total of 136 (83.4%) were general practitioners and 27 (16.6%) were specialists.

Respondents' knowledge regarding Halal pharmaceuticals

Out of maximum possible score of 9, the mean knowledge score was 7.72 (SD = 1.65) [Table 2]. A large

Table 1: Descriptive characteristics of general medical practitioners

Characteristics	Demographic characteristics	Frequency (%)
Age (years)	28-37	6 (3.7)
	38-47	49 (29.9)
	48-57	51 (31.1)
	58-67	48 (29.3)
	≥68	10 (6.1)
	Total	161
Gender	Male	128 (78)
	Female	36 (22)
	Total	164
Race	Malay	68 (42.5)
	Chinese	57 (35.6)
	Indian	35 (21.9)
	Total	160
Religion	Muslims	74 (45.4)
	Christians	26 (16)
	Buddhist	25 (15.3)
	Hindu	23 (14.1)
	Others (Sikh=8, IBAW=1, atheist=2)	15 (9.2)
	Total	163
Nationality	Malaysian	162 (100)
	Total	162
Current position	General practitioner	136 (83.4)
	Specialist	27 (16.6)
	Total	163
Area of practice	General practitioner	80 (75.5)
	Internal medicine	5 (4.7)
	Obstetrics and gynecology	4 (3.8)
	Ophthalmology	7 (6.6)
	Dermatology	1 (0.9)
	Orthopedics	1 (0.9)
	Pediatrics	3 (2.8)
	Gastroenterology	3 (2.8)
	Cardiology	1 (0.9)
	Nephrology	1 (0.9)
Basic medical qualification	MBBS	113 (69.8)
	Doctor in medicine (MD)	49 (30.2)
	Total	162
Post graduate qualification	Yes	51 (31.1)
	No	113 (68.9)
	Total	164
Country of basic degree	Malaysia	87 (53.4)
	Others (India=41, Australia=6, Singapore=6, UK=4, Belgium=3, Egypt=2, Indonesia=1, West Indies=1, Russia=1, Turkey=1)	76 (46.6)
	Total	163
Working experience (years)	1-10	8 (4.9)
	11-20	54 (33.3)

Contd...

Table 1: Contd...

Characteristics	Demographic characteristics	Frequency (%)
	21-30	57 (35.2)
	31-40	37 (22.8)
	41-50	6 (3.7)
	Total	162

The frequencies and percentages are based on observed values; missing values are excluded. MBBS=Bachelor of Medicine, Bachelor of Surgery, MD= Doctor of Medicine

Table 2: General medical practitioners' knowledge about Halal pharmaceuticals (frequency distribution)

Statements	Responses *N* (%)	
	Yes	No
Are you aware of the term/word "Halal"?	161 (98.8)	2 (1.2)
Are you aware of the term/ word "Haram"?	155 (95.1)	8 (4.9)
Are you aware of the term/word "Halal pharmaceuticals"?	137 (84)	26 (16)
Do you know that Muslim patients need Halal medicines?	151 (93.8)	10 (6.2)
Do you know that dead animals, blood, pork, and alcohol are Haram for Muslims to use in any form (food, medication, etc.)?	154 (94.5)	9 (5.5)
Do you know that ingredients of some drugs/medicines are derived from porcine and dead animals?	149 (91.4)	14 (8.6)
Do you know that resources are available to offer Halal alternatives of non-Halal drugs?	113 (69.8)	49 (30.2)
Do you know that it is ethical obligation for a practitioner to take consent from the patient before dispensing any medicine which has any non-Halal content?	114 (70.8)	47 (29.2)
Do you know that most of the doctors are aware of the presence of potentially forbidden animal-derived ingredients in medicines?	124 (76.5)	38 (23.5)

The frequencies and percentages are based on observed values; missing values are excluded

majority (92%) of the respondents scored 50% and above. Study showed that almost all (except two) of the respondents were aware of the term 'Halal' showing a significant association with respect to respondents' religion (P = 0.025). A large majority (95%) of the respondents was aware of the term 'Haram'; on the other hand, a total of 137 (84%) respondents were aware of the term "Halal pharmaceuticals". A total of 151 (93.8%) respondents were aware that Muslim patients need Halal medicine and only a small percentage (6.2%) was unaware.

Study further found that a total of 154 (94.5%) respondents were aware that dead animals, blood, pork, and alcohol are Haram for Muslims to use in any form (food, medication, etc.). A total of 149 (91.4%) respondents were aware that ingredients of some drugs/medicines are derived from porcine and dead animals. A total of 113 (69.8%) respondents had knowledge that resources are available to offer Halal alternatives to non-Halal drugs. Only 114 (70.8%) of the respondents had knowledge that it is an ethical obligation for a practitioner to take consent from the patient before dispensing any medicine which has any non-Halal content. However, 124 (76.5%) of the respondents were aware and that most of the doctors are aware of the presence of potentially forbidden animal-derived ingredients in medicines.

Respondents' perception regarding Halal pharmaceuticals

Out of maximum possible score (55), the mean perception score was 46.98 ± 5.84 and almost all respondents scored more than 50% of the perception score denoting a positive perception towards Halal pharmaceuticals [Table 3].

Results showed that a total of 108 (65.9%) respondents strongly agreed, that the patient has a right to ask the information about sources of ingredients in medicines. While 46 (28%) of the respondents strongly agreed, that it is important for prescriber to explain about the sources and ingredients of medicine as much as possible and encourage the patients to ask questions. However, 25 (15.4%) respondents strongly agreed, that it is not a common practice to inform the patients about sources of the medicines.

We found that 101 (61.6%) respondents strongly agreed that drug manufacturers should provide prescribers with a list of their products containing animal-derived ingredients. A total of 79 (48.8%) respondents strongly agreed that doctors should be educated about the sources of medicines. A total of 88 (53.7%) respondents strongly agreed, that patient's religious beliefs considered while prescribing medicines. On the other hand, 74 (45.4%) of the respondents strongly agreed, that patient's religious beliefs impact their adherence to drug therapy.

Respondents' attitude regarding Halal pharmaceuticals

Out of maximum possible score (45), the mean attitude score was 34.24 ± 6.77 and more than 92% of the respondents scored 50% or more of the attitude score, denoting a positive attitude towards Halal pharmaceuticals [Table 4].

Table 3: General medical practitioners' perception about Halal pharmaceuticals (frequency distribution)

Statements	Responses *N* (%)				
	SA	A	N	DA	SDA
Patient has a right to ask information about sources and ingredients of medicines.	108 (65.9)	52 (31.7)	3 (1.8)	1 (0.6)	
It is important for prescriber to explain about the sources and ingredients of medicine as much as possible and encourage the patients to ask questions.	46 (28)	78 (47.6)	31 (18.9)	7 (4.3)	2 (1.2)
It is not a common practice to inform the patients about sources of the medicines.	25 (15.4)	84 (51.9)	28 (17.3)	16 (9.9)	9 (5.6)
Drug manufacturers should provide prescribers with a list of their products containing animal-derived ingredients.	101 (61.6)	50 (30.5)	12 (7.3)	1 (0.6)	
Doctor should be educated about the sources of medicines.	79 (48.8)	66 (40.7)	15 (9.3)	2 (1.2)	
Patient's religious beliefs are considered while prescribing medicines.	88 (53.7)	62 (37.8)	9 (5.5)	4 (2.4)	1 (0.6)
Patient's religious beliefs impact their adherence to drug therapy.	74 (45.4)	65 (39.9)	15 (9.2)	9 (5.5)	
Pharmaceutical manufacturers should be sensitive towards the requirements of patients and where ever possible should produce Halal medicines.	92 (56.1)	58 (35.4)	11 (6.7)	3 (1.8)	
Drug companies should clearly mark medication packaging with easy-to-spot Halal/non-Halal labels.	96 (58.5)	56 (34.1)	8 (4.9)	4 (2.4)	
Clear and well-explained guidelines are need of healthcare professionals to navigate religious conflicts.	77 (47.2)	65 (39.9)	15 (9.2)	5 (3.1)	1 (0.6)
Healthcare professionals need to define medical necessity and explore existence of Halal alternatives.	63 (38.4)	68 (41.5)	28 (17.1)	4 (2.4)	1 (0.6)

The frequencies and percentages are based on observed values; missing values are excluded. The cut off level of ≥28 was considered as positive perception, while <28 as negative. SA=Strongly agree, A=Agree, N=Neutral, DA=Disagree, SDA=Strongly disagree

Table 4: General medical practitioners' attitude about Halal pharmaceuticals (frequency distribution)

Statements	Responses *N* (%)				
	SA	A	N	DA	SDA
I discuss with patients about forbidden/Haram ingredients of drugs	28 (17.2)	58 (35.6)	62 (38)	11 (6.7)	4 (2.5)
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)	42 (25.8)	79 (48.5)	30 (18.4)	10 (6.1)	2 (1.2)
I take consent from patients, if I know the drug is non-Halal	46 (28.9)	61 (38.4)	34 (21.4)	16 (10.1)	2 (1.3)
I consider patient's religious beliefs when designing a treatment regimen	68 (41.7)	69 (42.3)	17 (10.4)	8 (4.9)	1 (0.6)
I make an effort to search for any available Halal alternatives	37 (22.7)	73 (44.8)	40 (24.5)	11 (6.7)	2 (1.2)
I educate the patient regarding Halal ingredients	32 (19.6)	57 (35)	60 (36.8)	11 (6.7)	3 (1.8)
I prefer Halal medicines in my practice	72 (44.4)	34 (21.0)	40 (24.7)	13 (8.0)	3 (1.9)
I recommend the purchase of Halal alternatives, which may be more expensive	54 (33.1)	47 (28.8)	45 (27.6)	12 (7.4)	5 (3.1)
I feel that medical representatives are a good source of information about sources and ingredients of drugs for me	52 (32.1)	62 (38.3)	32 (19.8)	10 (6.2)	6 (3.7)

The frequencies and percentages are based on observed values; missing values are excluded. The cut off level of ≥23 was considered as positive attitude, while <23 as negative. SA=Strongly agree, A=Agree, N=Neutral, DA=Disagree, SDA=Strongly disagree

Results showed that 28 (17.2%) respondents strongly agreed, while 58 (35.6%) agreed that they discuss with their patients about forbidden/Haram ingredients of drugs. A total of 42 (25.8%) respondents strongly agreed, while 79 (48.5%) agreed that they feel moral obligation to disclose the derivation of non-Halal ingredients to the patients (e.g., alcohol in syrups/elixirs and gelatin in capsules). It is further found that 46 (28.9%) of the respondents strongly agreed that they take consent from patients, if they know the drug is non-Halal. Study further found that 72 (44.4%) of the respondents strongly agreed that they prefer Halal medicines in their practice. A total of 54 (33.1%) respondents strongly agreed that they recommend the purchase of Halal alternatives, which may be more expensive. It is further found that 52 (32.1%) of the respondents strongly agreed that they feel that medical representatives are a good source of information about sources and ingredients of drugs for them [Table 5].

Correlation between KAP

Correlation between KAP is depicted in Table 6. There was a significant, positive, and fair correlation (0.25-0.5) between knowledge and perception ($r = 0.332$, $P < 0.001$) and knowledge and attitude ($r = 0.443$,

Table 5: Mean and median score of respondents' knowledge, attitude, perception, and KAP about Halal pharmaceuticals

Variables	Mean±SD	Median (IQR) (25-75)
Knowledge	7.72±1.65	8 (7-9)
Attitude	34.24±6.77	35 (29.25-39)
Perception	46.98±5.84	48 (44-52)
KAP	88.90±12.75	90.5 (81-99)

SD=Standard deviation, IR=Interquartile range, KAP=Knowledge, attitude, and perception, IQR=Interquartile range

Table 6: Correlation between knowledge, attitude, and perception

Variables	No. of respondents (*n*)	*P* value	Correlation (r)
Knowledge-perception	164	<0.001	0.332
Knowledge-attitude	164	<0.001	0.443
Attitude-perception	164	<0.001	0.741

$P < 0.001$); good correlation (0.5-0.75) between attitude and perception ($r = 0.741$, $P < 0.001$). This means that better knowledge the respondents have of Halal pharmaceuticals, better their perception and attitude is towards Halal pharmaceuticals.

DISCUSSION

This study was conducted to evaluate the KAP of general medical practitioners towards Halal medicines in Malaysia. A total of 164 general medical practitioners participated in the survey. This was the first study to look into this sensitive issue. Medicines have become a necessity now to maintain health. Usually, there are three players in this context; physicians, pharmacists, and consumers. Consumers usually cannot judge which medicine is suitable for them. This is then the role of physician to choose the most suitable medication for his/her patient keeping in mind the religious beliefs of the patient as well. In this study we tried to explore the knowledge of general medical practitioners about Halal pharmaceuticals. Study findings showed that general medical practitioners had a good knowledge towards issues surrounding Halal pharmaceuticals. More than 92% of the respondents scored more than 50% of the knowledge score. Study found positive perception about Halal pharmaceuticals. Majority of the respondents perceived that patients have a right to ask information about sources of ingredients in medicines which are prescribed to them. A large majority of the respondents agreed that drug companies should clearly mark medication packaging with 'Halal' or 'non-Halal' logos. If drug manufacturers practice to mark clearly about Halal or non-Halal, then it will be easy for a medical practitioner to choose a Halal medicine, if+required by the patient. Majority of respondents perceived that doctors should be educated more about Halal medicines. Moreover, doctors should inform their patients about Haram ingredients.

Study respondents had positive attitude towards Halal pharmaceuticals. A large majority recommended to purchase Halal medicines, take consent from their patients, educate the patients about Halal ingredients of medicine, and discuss with their patients about Haram ingredients of medicines.

A significant, positive correlation was found between knowledge and attitude, attitude and perception, and knowledge and perception. This means that better knowledge will result in positive attitude towards Halal pharmaceuticals.

CONCLUSION

In conclusion, it can be said that the general practitioners in Malaysia have good knowledge and positive attitude towards Halal medicines.

SUGGESTIONS FOR FURTHER STUDY

This issue is of paramount importance for Muslims as it affects their religious believes directly and should be researched and explored in various parts of the world and not only in Malaysia.

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