

ORIGINAL ARTICLE

EXPLORING THE INTERFACE BETWEEN COMPLEMENTARY MEDICINE AND COMMUNITY PHARMACY IN MALAYSIA - A SURVEY OF PHARMACISTS

*Pei Nee Wong¹, Lesley A. Braun² and Thomas Paraidathathu¹¹*School of Pharmacy, Taylor's University, Subang Jaya, Selangor, Malaysia*²*Blackmores Institute, NSW, Australia; Western Sydney University, National Institute of Complementary Medicine, NSW, Australia****Corresponding author:**

Pei Nee Wong

Email: pnee99@gmail.com**ABSTRACT**

The use of complementary medicine (CM) is on the rise worldwide. In Malaysia, CM is available as over-the-counter products in community pharmacies and consumers expect pharmacists to be knowledgeable about CM. However, little is known about Malaysian community pharmacists' attitude and knowledge of CM. This cross-sectional study aimed to investigate the extent of integration of CM into practice, taking into account community pharmacists' attitudes towards CM, their role in recommending CM, their knowledge of the evidence-base for commonly used CM, further education and training needs, and knowledge of information sources which can be used by pharmacists for CM information. Ethics approval was obtained and a pilot study was conducted to validate the questionnaire. After amendments were made, community pharmacists were invited to complete a 41-item paper-based or web-based questionnaire. Invitations to complete the survey were sent by either social media, email or face-to-face invitation. A response rate of 27% (453/1662) was achieved providing data from 453 community pharmacists. Most respondents were female (63%), aged 24-72 years. Only 42% of pharmacists always asked their customers presenting with a prescription about concomitant CM use. Forty-two percent (42%) of pharmacists personally recommended CM and slightly more than half (58%) had notified manufacturers of CM products of any suspected adverse drug reactions. On average, pharmacists achieved a score of 54% for knowledge on CM-drug interactions and 71% for knowledge of clinically proven benefits. Most pharmacists (75%) obtained their CM product training through self-directed learning. In addition, most pharmacists (66%) supported CM education at the undergraduate level and almost all (94%) recognised the need for additional CM education for pharmacists. Malaysian registered pharmacists do not routinely ask customers about CM use, or recommend CM products, but have a positive attitude towards their use and were interested in learning more about CM.

Keywords: complementary medicine, integrative medicine, community pharmacists, pharmacy practice, quality use of medicines

INTRODUCTION

In Malaysia, Traditional and Complementary Medicine (T&CM) is a form of health-related practice designed to prevent, treat, and manage illness using a holistic approach and is often described as a form of medicine that strives to preserve the mental and physical well-being of individuals. T&CM includes the use of complementary medicine (CM).¹

There is no internationally agreed definition of complementary medicine (CM) as its meaning varies with different cultures. Also, the term CM is often used interchangeably with traditional, holistic, natural, or alternative medicine.^{2,3} For the purpose of this study, CM is defined as products used to prevent, treat or manage illness such as herbal medicines, nutritional supplements, vitamin, and mineral supplements¹. It refers to CM readily available in Malaysia over-the-counter (OTC) in most pharmacies, from healthcare stores, supermarkets and other retail establishments and

online. The sales value of CM in Malaysia was estimated to be RM1.699 million in 2013, which was just 7% less than pharmaceuticals (i.e. over-the-counter and prescription medicines), indicating significant use and public spend.⁴

In Malaysia, under the statutory regulation, a person intending to practice CM in any recognised practice area shall apply to the T&CM Council to register.⁵ A registered CM practitioner needs to have an appropriate academic qualification recognised by the Council. While it is uncommon to have registered CM practitioners in Malaysian community pharmacies, in other countries, such as Australia, there is a movement towards an integrative model of healthcare, with consumers choosing to consult a CM practitioner in conjunction with conventional healthcare providers.⁶

Many studies related to the practice of T&CM have looked at CM use among patients.⁷⁻¹⁵ In addition, a number of studies conducted among pharmacy students, examined their understanding,

perceptions, self-use, knowledge, or attitudes towards CM.¹⁶⁻¹⁹ Despite the fact that an increasing number of Malaysians use CM^{4,20}, and the public's perception that community pharmacists should be able to provide information about CM^{19, 21}, little is actually known about how community pharmacists view their own competency in answering enquiries about CM products, supplying and dispensing CM or to what extent they currently recommend these products.

Additionally, none of the previous studies focused on Malaysian pharmacists, even though they are the frontline professionals who are in a position to recommend products, counsel and discuss the appropriate use of CM in community pharmacies in Malaysia.¹⁶ It is relevant to note that there have been previous surveys investigating pharmacists' knowledge and attitudes toward CM however none have been conducted in Malaysia. Other studies regarding pharmacy practice and CM products were predominantly conducted in Australia,²¹⁻²⁵ Canada and the United States.²⁶ In view of this, there is a knowledge gap regarding pharmacy practice in Malaysia. The current study aims to investigate the integration of CM into practices taking into account community pharmacists attitudes towards CM, their role in recommending CM, knowledge about the evidence-base of commonly used CM, further education and training needs, and information sources used by pharmacists for CM information.

METHODS

Setting and Sample

This was a cross-sectional study that involved convenience sampling of community pharmacists in Malaysia. All fully registered pharmacists working in community pharmacy and willing to participate in the study were recruited. Provisionally registered pharmacists working in community pharmacies were excluded. The sampling frame consisted of a list of community pharmacies obtained from the Malaysian Pharmaceutical Society (MPS), which contained 1,662 community pharmacies in Malaysia. The minimum calculated sample size required to achieve a confidence interval of 95% and a margin of error not more than 5% was 313. Sample size was calculated using the Rao Soft[®] online sample size calculator.²⁷

Questionnaire Design and Validation

A 41-item self-administered questionnaire was adapted from a similar study conducted in Australia.²¹ The modified questionnaire was tested for face and content validity by two experts (senior pharmacy academics and who had previously conducted similar studies) and five registered pharmacists. A pilot study was conducted with 10 community pharmacists to evaluate the reliability of the updated questionnaire. Cronbach's alpha²⁸ test was carried out to check for internal consistency of

the questionnaire and the value was found to be 0.70, which was considered reliable.²⁹⁻³⁰ Final modifications were made based upon the results of the pilot study.

The final questionnaire consisted of seven sections: 1) demographic information, 2) pharmacists' recommending behaviour towards CM, 3) pharmacists communication about CM with customers, 4) pharmacists opinions about CM products, 5) CM knowledge, 6) CM information sources, and 7) perceived CM education needs.

Section four of the questionnaire (15 items on pharmacists' opinions about CM products) used a five-point Likert scale to indicate the level of agreement: "strongly disagree", "disagree", "not sure", "agree", and "strongly agree".

The knowledge component in section five of the questionnaire comprised two parts. Part 1 consisted of the following question: "Which of the following CM induce a clinically significant interaction with the listed medications?" Part 2 consisted of the following question: "Which of the following CM have clinically proven benefits for the listed indications?". The questions had possible response of 'yes', 'no' and 'unsure'. A correct answer was scored one (1) and an incorrect answer was scored zero (0). The maximum score for Part 1 (CM-drug interactions) was 16 and Part 2 (clinically proven benefit) was 25. Other items were either multiple choice answers or lists with multiple options that could be selected.

Data Collection and Subject Recruitment

Taylor's University Human Research Ethics Committee approved the study, and data collection took place between April and December 2015. Consent was implied upon agreement to complete the questionnaire. Chief pharmacists of chain pharmacies, The Malaysian Community Pharmacists Guild (MCPG) and the Malaysian Pharmaceutical Society (MPS) Community Pharmacy Chapter were requested to encourage their members to complete the questionnaire either via a paper-based or online survey (via SurveyMonkey[™]). Other potential respondents were contacted via social media (i.e. Facebook). An email reminder was sent to the chief pharmacists two weeks after the first announcement to increase the response rate. The paper-based survey was collected at the end of a four-week period.

Data was manually entered into the SurveyMonkey[™] online survey portal either directly by the respondents or by the researcher based on responses collected from the paper-based questionnaire.

Data Analysis

The survey responses were coded and entered manually into Statistical Package for Social Sciences (SPSS) for Windows version 20.

Descriptive analysis was performed on all the data collected to obtain the frequencies and percentages of occurrence. Independent T-tests and analysis of variance (ANOVA) were used to compare group means. Results were reported as percentages and frequencies. Test results were considered statistically significant when the p-value was less than 0.05.

RESULTS

Demographic and Background Information

Responses were received from 453 community pharmacists (from a list of 1,662 community pharmacies provided by the Malaysian Pharmaceutical Society), giving a response rate of 27%. The majority of the respondents were female (63%, n=284), aged 24-72 years (median=35,

mean=37). The largest age bracket for respondents was 31-40 years, with 43% of respondents. Only 3% of respondents were above 60 years of age. More than half of the pharmacists (54%, n=245) graduated from Malaysian universities. A large percentage of pharmacists had between 11-20 years of experience as community pharmacists (36%, n=163) and nearly half (n=215, 47%) practiced in large pharmacy chains (i.e. pharmacies with ≥ 10 outlets). Almost all the pharmacies stocked CM products (n=448, 99%). Approximately 59% considered that they stocked a wide range of CM products, while about 40% said that they stocked a limited range of CM products. Details on the demographic characteristics of respondents are provided in Table 1.

Table 1 Demographic and practice characteristic of survey respondents

Characteristic	N (%)
Gender	
Male	284 (63.0)
Female	169 (37.0)
Country of graduation	
Malaysia	245 (54.1)
United Kingdom	119 (26.3)
Australia	54 (11.9)
Others	35 (7.7)
Number of years of practice in community pharmacy (years)	
< 1	6 (1.3)
1-5	96 (21.2)
6-10	120 (26.5)
11-20	163 (36.0)
>20	68 (15.0)
Type of pharmacy where the pharmacist was practicing	
Independent	185 (40.8)
Small chain (< 10 outlets)	53 (11.7)
Large chain (≥ 10 outlets)	215 (47.5)

N, number of respondents

%, percentage of respondents

Employment of CM Practitioner in the Pharmacy Setting

A small number of community pharmacies employed a CM practitioner (e.g. naturopath, natural therapist, Chinese Medicines practitioner, Ayurvedic practitioner) (3%, n=14). Only 3% (n=14) of the respondents who did not employ a CM practitioner said that they would consider employing a CM practitioner. The most important factor that they would take into consideration when hiring a CM practitioner was whether they possessed an appropriate tertiary qualification of CM (65%, n=293). Other factors that they would consider included whether the CM practitioner could increase the sales of CM products (49%, n=223) and if the CM practitioners were members of their professional associations (43%, n=195).

Attitude towards CM and recommending CM to patient

The majority of the respondents (93%) reported that they were practicing integrative care wholly or partly, where they would recommend CM together with conventional medicines as part of their standard practice. The top three factors that hindered pharmacists from providing integrative care were lack of sufficient knowledge, lack of information sources and limited opportunity to discuss with customers. The most common CM products recommended by pharmacists to consumers were multivitamins (93%), glucosamine (93%), omega-3 (91%), vitamin C (91%) and probiotics (87%). When providing recommendation of CM, pharmacists generally relied on information from books and leaflets (67%), their own knowledge (64%), and information from textbooks, internet and journals (60%).

Pharmacist communication about CM and adverse reaction reporting

Pharmacists did not ask every patient taking prescribed medicine if they also took CM. Only 42% pharmacists reported that they always asked. No opportunity to ask (40%), the thought that it was too time consuming (31%) and lack of relevance (29%) were major reasons for not asking all patients taking prescription medicines about CM products.

Overall, in the last 12 months, 23% (n=106) of pharmacists received reports from consumers about CM adverse reactions, including gastrointestinal discomfort, gastric pain, bloating, dry mouth, rashes, allergy, increased heart rate, diarrhoea, constipation, dizziness, nausea and vomiting, lethargy, leg swelling, oedema, weight gain and yellow urine. Of those pharmacists notified of an adverse reaction, more than half (58%, n=61) stated that they notified the product manufacturer, 33% (n=35) stated that they marked it in the patient notes/ profile, 25% (n=26) of them referred customer to their medical doctor, 8% (n=8) notified Malaysian Adverse Drug Reaction Advisory Committee (MADRAC) and 8% (n=8) did nothing.

Pharmacists' Perception about CM Products

The majority of respondents (93%) recognised the financial benefits CM products bring to their pharmacies and most (93%) agreed that customers now expected more information on CM products from their pharmacists. Almost all (94%) both agreed and strongly agreed that pharmacists should play a greater role in counselling and providing information about the safe use of CM products. Concerns about quality of products were identified. The majority of the pharmacists were unsure and did not feel confident about the quality of CM products manufactured in Malaysia (60%) or Asian countries (67%) but were more confident about the quality of those manufactured in developed countries (e.g. Australia, UK, USA) (84%). In addition, more than half of the pharmacists (60%) were either unsure, disagreed or strongly disagreed that the advertising of CM products in Malaysia was sufficiently well regulated. Nearly all community pharmacists (96%) agreed that CM products should have more detailed product information.

CM Information Sources

The top sources of information about CM products were the manufacturers' literature (59%), the Internet (49%) and professional seminars/conferences or lectures (43%). Other sources included databases (such as PubMed/ Medline) (36%), reference texts (such as MIMs, AFF, APP) (29%) and others.

CM Knowledge Test

Responses were received from 87% of participant pharmacists. The mean correct score obtained for Part 1 (CM-drug interactions) was 8.1 out of a

maximum of 16 and Part 2 (clinically proven benefit) was 17.7 out of a maximum of 25. Overall, the mean aggregate score for both parts of the knowledge test was 23.4 out of a maximum of 41. There were no statistically significant differences among pharmacists who graduated from different countries in relation to their aggregate knowledge scores, $F(3, 449) = 1.54, p = 0.203$.

The group of pharmacists who had been in practice between 11-20 years obtained the highest aggregate score (24.80 ± 10.17) followed by pharmacists with work experience of between 6-10 years (23.99 ± 10.79). Those with more than 20 years of work experience scored significantly lower than those with 11-20 years of work experience (18.96 ± 13.13), $F(4, 448) = 3.58, p = 0.007$. There were no other significant differences between the other groups.

By comparison, pharmacists who had received undergraduate CM lectures attained a significantly higher mean aggregate score than pharmacists who had not (25.6 ± 9.33 vs $22.12 \pm 12.01, p=0.001$). Similarly, pharmacists who had attended manufacturers' seminars achieved significantly higher knowledge scores compared to those who had not (24.81 ± 10.14 vs $21.29 \pm 12.40, p=0.002$).

CM Training and Future Education

The majority of pharmacists (75%) completed self-directed learning for CM. Only 37% of the respondents had undertaken some kind of formal training (degree, certificate or diploma) in CM. The majority of pharmacists (66%) thought it was very important for undergraduate pharmacy students to learn about evidence-based CM and nearly all pharmacists (94%) were interested in further training. The community pharmacists preferred to learn about CM by attending face-to-face seminars (55%), weekend workshops (43%), online short courses (40%) and via accessing electronic newsletters (40%). The largest group of respondents (38%) felt that the ideal duration for CM training was 1-2 hours each month. Overall, most pharmacists favoured the training to be offered by a professional organisation such as the Malaysian Pharmaceutical Society (MPS) (52%).

DISCUSSION

Response Rate and Demographic Details

The response rate in this study was good and the number of responses exceeded the mean calculated sample size required.²⁷ Additionally, the demographic characteristics of participating community pharmacists is a reflection of the pharmacy profession in Malaysia, where the majority of pharmacists are female, graduates of local universities, aged 31-40 years old³¹ and working in large chain or independent pharmacy³². Therefore, there is a high degree of confidence that the results obtained by this study provide a

good representation of pharmacists' opinions and behaviours.

Employment of CM Practitioners in the Pharmacy Setting

Only 3% (n=14) of respondents currently employed a CM practitioner compared to 18% (n=95) in Australia²¹ and few were interested to employ a CM practitioner compared to a similar sample of Australian pharmacists. Both groups were concerned about the professional qualification of the CM practitioner and whether they could add commercial value to the business. The current move by the government to register practitioners of complementary medicine may increase the confidence of community pharmacists in the ability and employability of CM practitioners in the future.³³

Pharmacists' Attitudes and Perceptions towards CM

An interesting finding regarding product quality was that the majority of Malaysian community pharmacists lacked confidence in the quality of CM products manufactured in Malaysia and other Asian nations but had greater confidence in products made in developed countries such as the United Kingdom, United States, and Australia. This could be due to the perception of the quality of raw materials used in the manufacturing of CM products in Malaysia, previously reported to have little standardisation.³⁴ It could also relate to the general perception of differences in CM product regulation, good manufacturing standards amongst manufacturers, and the general Malaysian perception about the quality of foreign-made products. Sharon and Zuraidah³⁵ found that Malaysian consumers' perceptions largely depended on the economic status of the country of manufacture. If the product were manufactured in a country with a lower economic status than Malaysia, Malaysians would perceive the products as cheap and inferior. On the contrary, products made in more advanced countries, like the US, were seen as of higher quality. There were also safety concerns and issues with the effectiveness of CM products, which have yet to be fully addressed in Malaysia. This is because CM products are not regulated for efficacy and there are often reports of the presence of adulterated CM products.³⁶

While most pharmacists reported that they were practicing integrative care, those who did not have such a practice felt that they lacked sufficient knowledge and information sources about CM to discuss with customers. In line with a study conducted in Australia, over 50% of the surveyed pharmacists did not recommend CM products as standard practice because of insufficient knowledge.²¹ Lack of knowledge has also been reported as barriers to practice in Singapore³⁷, and the United States³⁸⁻³⁹.

Information sources and reporting of ADRs of CM

Information provided by the manufacturer was important as it appeared to be the main source of information pharmacists used to counsel their customers. The Internet was also an important source of information, most likely because it was free, easy to navigate and easy to access compared to print sources. However, as information from the Internet may be inaccurate or biased, pharmacists need to be able to identify biased, inaccurate or questionable sources and only use reliable sources and reference materials. Often, pharmacists used tertiary drug resources (e.g. handbooks) to retrieve drug-related information while a lesser number preferred primary literature references.⁴⁰⁻⁴¹

These findings strongly suggest that the availability and inclusion of evidence-based CM information into manufacturer leaflets, professional handbooks (such as some in Australia) and guidelines were of utmost importance for the benefit of patients and pharmacists. Interestingly, although company sponsored talks are often perceived as being biased, those who attended manufacturer sponsored talks scored higher in awareness of the efficacy and interactions of CM products. This indicates that while manufacturer sponsored talks or seminars may focus on the products they manufacture, they were also a useful source of generic information and helped participants build knowledge.

The study also found that few community pharmacists (8%, n=8) reported ADRs of CM to MADRAC which was less than a similar Canadian study (19%)⁴² and Australian study (17%)²¹. This has emphasised the importance of continuing efforts to promote the ADR reporting system in Malaysia.

Knowledge and Training of Community Pharmacists

Overall, the pharmacists' scores for knowledge about CM were poor and leaves much room for improvement. This parallels a pharmacist study in Australia²¹ that also revealed a low aggregate score. Other CM knowledge tests conducted among community pharmacists in different countries (Singapore, United States, Australia)^{24,37,43} for specific CM products (e.g. Black Cohosh, Saw Palmetto, Feverfew) also revealed significant deficits in knowledge about CM among pharmacists indicating this problem is not restricted to Malaysia but common across several countries, including developed countries. The study revealed that CM seminars conducted by manufacturers and undergraduate training on CM had a positive impact on pharmacists' knowledge. The Australian study²¹ reported similar findings, where pharmacists who had lectures on CM during their undergraduate studies and others who attended manufacturers' seminars

achieved significantly higher knowledge scores compared to those who did not.

This study revealed that only 37% (n=166) of pharmacists received some form of CM training during their undergraduate studies. It was interesting to note that two-thirds of pharmacists (66%) were of the opinion that evidence-based CM should be incorporated into the undergraduate curriculum. While there was no statistics showing the coverage of CM-related training in pharmacy undergraduate courses, it is worth mentioning that a recent study revealed that pharmacy students did not have adequate knowledge of CM, though their attitudes and perception were relatively positive towards CM.²¹ Therefore, CM education should be incorporated in pharmacy curriculum to bridge the knowledge gap and provide necessary skills to future pharmacists. Surveys conducted in Canada, Australia and New Zealand have shown the same trend with pharmacists strongly agreeing that CM education should be included in the pharmacy curriculum.^{26,44,45} Integration of CM courses in pharmacy curricula has been shown to increase students' knowledge and their application in actual day-to-day practice.⁴⁶ It is possible that pharmacists are aware they lack knowledge and confidence and felt that more university training would address this issue for the next generation.

Importantly, nearly all pharmacists recognised the need for additional CM training. This could be attributed to the increased use of CM, increased customer demand and enquiry, and an understanding that they lacked knowledge of CM. Several studies have identified the continuing need for CM education and training for pharmacists.^{37,47,48} As such, future interventions to promote professional and quality CM use and service should focus on encouraging pharmacists to attend CM-related training. Engaging in continuing professional development (CPD) could be one way to update and upgrade oneself.

Finally, the study found an association between years in practice and knowledge of CM. The pharmacists who achieved the highest scores for the knowledge test were those with 11-20 years of work experience, while knowledge scores amongst those with more than 20 years' experience were significantly lower. This may be because those with 11-20 years of work experience (who were pharmacists 31-40 years of age) had more CM education in their curriculum and/ or had amassed knowledge through experience and exposure during the years of work. For older pharmacists, it is possible they received little training during their undergraduate studies and did not stay up-to-date with current CM practices.

LIMITATIONS OF THE STUDY

Although the sample size was adequate from an epidemiological perspective, response bias due to differences in sampling methodology and also the different channels of distribution may hinder the generalisability of the study results. Also, as the method involved a self-administered questionnaire, response bias is possible as those displaying greater interest in CM (either positive or negative) may have been more likely to respond. In addition, all data collected in this study was retrospective and recall bias may have affected the results. With respect to the questionnaires on knowledge, the 'correct' answers were obtained from two texts.^{49,50} The use of other resources could provide a slightly different set of 'correct' answers, however major differences are not expected. The knowledge questions just tested certain pieces of knowledge and may not adequately represent overall knowledge of the pharmacist. There is also the possibility that pharmacists referred to reference material to answer the knowledge questions. Despite these limitations, this study identifies knowledge gaps in the quality use of CM among community pharmacists in Malaysia and lays the foundation for further work.

CONCLUSION

This study revealed that community pharmacists in Malaysia had a positive attitude towards CM use, however the areas that need improvement cannot be ignored. Community pharmacists need to acquire more knowledge in relation to the safe and appropriate use of CM to engage in integrative care. Also, to encourage the informed use of CM in pharmacy, there is a need for the development of accessible and quality resources on CM. Additionally, there is a need to provide pharmacists with continuing professional development (CPD) activities and more opportunities to learn about evidence-based CM so that they can prepare themselves to better advise consumers. In addition, incorporation of CM education into pharmacy curricula, in greater depth, if already included, would better prepare graduates for community pharmacy practice where CM use is significant and customers need good advice. Ultimately, such moves would contribute to the safe and quality use of CM for the benefit of consumers.

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