

Community Pharmacist's Role in Providing Oral Health-care Services: Findings from Malaysia

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ABSTRACT **Introduction:** Pharmacists have been well recognized as an active and have a more integrated role in the preventive services within the National Health Services. This study assessed the community pharmacists' attitudes, beliefs, and practices toward oral health in the Malaysian setting. **Materials and Methods:** A cross-sectional survey-based study was used to conduct this project. An anonymous self-administered questionnaire was developed and distributed among community pharmacists within Kuala Lumpur and Selangor states areas, Malaysia. The data collection was carried out from the beginning of November to the end of December 2018. **Results:** Of the 255 pharmacists, 206 agreed to participate in the study, yielding a response rate of 80.8%. Overall, approximately half of the pharmacists provided two to five oral health consultations per week and two to five over the counter (OTC) oral health products recommendations per week. The main services provided by community pharmacists in were the provision of OTC treatments (93.7%), referral of consumers to dental or medical practitioners when appropriate (82.5%), and identify signs and symptoms of oral health problems in patients (77.2%). In addition, more than 80% of the pharmacists viewed positively and supported integrating oral health promotion and preventive measures into their practices. The most commonly reported barriers to extending the roles of pharmacists in oral health care include lack of knowledge or training in this field, lack of training resources, and lack of oral health educational promotion materials. **Conclusion:** The study shows that community pharmacists had been providing a certain level of oral health services and play an important role in oral health. The findings highlighted the need of an interprofessional partnership between the pharmacy professional bodies with Malaysian dental associations to develop, and evaluate evidence-based resources, guidelines, the scope of oral health in pharmacy curricula and services to deliver improved oral health care within Malaysian communities.

KEYWORDS: Attitude, community pharmacy, dental services, Malaysia, oral health, pharmacist

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INTRODUCTION

Oral health is essential to general health and quality of life. It can be defined as being free from any diseases or disorders that refrain an individual from biting, chewing, smiling, speaking, and psychosocial well-being.^[1] Although the majority of the oral

conditions are not life-threatening, quality of life can be affected because of the consequences of poor oral health. The high cost of dental treatment has

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been a burden to the community, especially among poor and socially disadvantaged individuals.^[2] The expenditure in Malaysia on oral health-care services in 2015 was estimated at RM401.2 million, equivalent to approximately 3.4% of total national health expenditure.^[3] Interprofessional teamwork between pharmacist and dentistry may help to encourage community pharmacist to take a more active role in promoting oral health. By providing information and assistance for self-care and the use of over the counter (OTC) products for minor problems on oral health, it can greatly reduce the dental cost of consumers and provide better patient care in the Malaysian health-care system.^[4] Community pharmacies play an essential role in providing primary health-care services. They could be the first health-care professionals that contact with the public in regards to oral health because of convenient accessibility and are based within the centre of the local community.^[5,6]

The pharmacist's role is undergoing significant changes whereby the role has evolved from merely compounding and dispensing to include a broader range of functions relating to primary care. Pharmacists have been considered for an active and more integrated role in the preventive services within the National Health Services (NHS) including assisting patients in self-monitoring of their blood glucose levels and blood pressure levels. They provide medication counseling for noncommunicable diseases and help to increase patient's compliance and adherence to medication therapy.^[7] Community pharmacies may also logistically serve as ideal health-care destinations to implement and deliver prevention, early intervention, and referral of oral health services to reduce the incidence of potentially preventable oral conditions including tooth decay, gum disease, and oral cancer. Community pharmacy staff play a critical role in delivering quality health care to people of all income levels and stages of life because of their trustworthy, knowledgeable, and well-respected health-care professionals.^[8]

According to a National Survey on the Quality Use of Medicine (NSUM) in 2015, of 3000 consumers in Malaysia.^[9] Around 76% of them obtained their medical supplies from a retail pharmacy. Moreover, 70% of them reported that they require additional counseling with the pharmacist to better understand and overcome any difficulty with their medicines. This reflects that although the role of the community pharmacist in the health-care system of Malaysia is growing continuously, there are still opportunities for enhancement in pharmacist's role focusing on patient-centered care in the near future.^[9] The overall prevalence of reported oral health problems among the

Malaysian population was 5.2% (95% CI 4.8–5.6).^[3] Risk factors of poor oral health include poor-quality diets, high sugar intake in foods and drinks, inappropriate infant feeding practices, poor hygiene, excessive smoking, and alcohol consumption.^[6] Almost all Malaysian experience dental or oral health issue at some time in their lives and the types of oral health-seeking behavior in Malaysia's population includes self-care/self-medication, seek treatment or advice from health-care providers, purchase medication after obtaining advice from the pharmacist, and seek advice other than from a health-care provider. It was reported that 23.2% of the population seek oral health advice and medication from the pharmacist, thus pharmacists are ideal in providing oral health care and promoting oral health awareness.^[3]

There is a paucity in studies that examine the role of community pharmacists in dental services. Previous studies showed that the pharmacist has a key role in oral health services and they are interested to expand their knowledge in this field. Moreover, the studies highlighted the need for growing partnerships between pharmacy and dental health-care professionals.^[10,11] To date, there is no information regarding oral health knowledge, attitudes, practice, and skills among practicing community pharmacists in Malaysia. However, there is only one study conducted among undergraduate pharmacy students to assess their knowledge and attitude toward oral health.^[12] The purpose of this study was to examine the current role of the Malaysian community pharmacist as oral health advisors. On the basis of the previous literature, it is obvious that pharmacists play an important role in oral health promotion. Therefore, we aimed to carry out this study to assess knowledge, attitudes, practice, and skills of community pharmacists toward addressing oral health issues. Furthermore, data from the study would be useful to help identify any future training requirements to enhance pharmacists' knowledge of oral conditions and help shape future plans and policies to further provide better primary care for Malaysian consumers.

MATERIALS AND METHODS

This study adopted an observational cross-sectional survey design. Data collection has been carried out in the period from mid of November 2018 to mid of December 2018 using an anonymous structured questionnaire distributed to pharmacists working in the community setting using convenience sampling method and pharmacists were approached physically. Verbal consent was obtained from all respondents to participate in the study. To show the power of the study,

questionnaires were distributed to four destinations of Kuala Lumpur and Selangor (North, South, East, and West) to represent the majority areas of the two states. Only pharmacists who are Malaysian working in the community setting in Kuala Lumpur and Selangor were included, whereas pharmacists who were not willing to participate were excluded. The participated pharmacist must be either Fully Registered Pharmacist (FRP) or Provisionally Registered Pharmacist (PRP) in Malaysia.

The items of the questionnaire were developed based on previous studies.^[10,11] The selected items were modified based on the Malaysian context. The content validity of the research questionnaire was done by two experts in the field. The aim was to ensure the suitability of the selected items to the Malaysian context. Then, it was followed by a pilot study among a sample of the population ($n = 15$ respondents). The reliability was assessed using Cronbach's α value, which was 0.71 for this questionnaire. It was divided into four sections collecting information to address the objectives of the study: Section A consists of items related to the demographics of the participant; Section B consists of questions related to oral health-care services provided in the pharmacy; Section C comprised questions related to the pharmacist's attitude, preferences, and opinions regarding oral health-care provision; and Section D includes questions about training areas and further support required in the oral health. The questionnaire responses were analyzed using the Statistical Package for the Social Sciences software, version 24.0 (IBM, Guildford, UK). The characteristics of the community pharmacists were described using both descriptive statistics and frequency distributions of the variables. Ethical approval for the study was obtained from the Monash University Human Research Ethics Committee (ID No. 14230).

RESULTS

A total of 461 invitations were sent to the community pharmacists around Kuala Lumpur and Selangor provinces in Malaysia, with a response rate of 80.8%. Among the 206 returned questionnaires, the majority of participants responded were aged between 25 and 29 (43.2%) years old, female (64.1%), and of Chinese ethnicity (88.3%) [Table 1]. Most of the pharmacists were having a bachelor degree (84.5%), employee pharmacist (61.7%), and only around 26% who received training on oral health care in the past 12 months.

Study findings showed that the main services provided by community pharmacists are the provision of OTC treatments (93.7%), refer the consumer to dental or

Table 1: Characteristic of pharmacist who responded to the survey and type of pharmacy ($n = 206$)

		Frequency (%)
Age	Under 25	21 (10.2)
	25–29	89 (43.2)
	30–39	69 (33.5)
	40–49	18 (8.7)
	50–59	6 (2.9)
	60 and over	3 (1.5)
Gender	Male	74 (35.9)
	Female	132 (64.1)
Education status	Bachelor	174 (84.5)
	Master	31 (15.0)
	Doctorate	1 (0.5)
Years of experience	1–5 years	105 (51.0)
	6–10 year	49 (23.8)
	11–15 years	26 (12.6)
	> 15 years	26 (12.6)
Type of pharmacy	Single-outlet independent pharmacy	39 (18.9)
	Multi-outlet independent pharmacy	49 (23.8)
	Chain pharmacy	118 (57.3)
Pharmacist position	Pharmacy owner and manager	29 (14.1)
	Pharmacy manager	50 (24.3)
	Employee pharmacist	127 (61.7)
Percentage of worktime on patient facing role	0–25%	10 (4.9)
	26–50%	23 (11.2)
	51–75%	105 (51.0)
	76–100%	68 (33.0)
CPD training on oral health care in the past 12 months	No	153 (74.3)
	Yes	53 (25.7)

medical practitioners when appropriate (82.5%), and identify sign and symptoms of oral health problems in patients (77.2%) [Table 2]. The least service provided was holding oral health promotion activities to provide education and raise awareness of issues relevant to oral health (10.7%). In the past 3 months, approximately half of the community pharmacists who responded to the questionnaire provided two to five consultations per week and two to five OTC products recommendations per week. Table 3 shows that most oral health-care products were provided in community pharmacies except high-fluoride oral care products (26.7%), Recaldent® (3.5%), Orthodontic Wax (18%), Dentafix filling repair (8.3%), and Dentist in a Box® dental emergency kits (4.4%). Community pharmacists who participated in this survey provided oral health consultation mainly to adults (96.7%) followed by older adults (61.2%), adolescents (47.6%),

Table 2: Oral health services provided by community pharmacist in Kuala Lumpur and Selangor (n = 206)

Oral health services	Frequency (%)
Provide over-the-counter (OTC) treatments for oral health presentations	193 (93.7)
Refer consumers to dental or medical practitioners when appropriate	170 (82.5)
Identify signs and symptoms of oral health problems in patients	159 (77.2)
Provide guidance and counseling for the treatment and prevention of oral health issues	133 (64.6)
Opportunistically discuss oral health care with patients where appropriate	75 (36.4)
Provide oral health-care-related written information for patients	56 (27.2)
Follow up with patients regarding previous oral health-care enquiries/consultations	43 (20.9)
Brief clinical examination of the patient's oral cavity	42 (20.4)
Hold oral health promotion activities to provide education and raise awareness of issues relevant to oral health	22 (10.7)

Table 3: OTC products stocked in community pharmacy

	Yes (%)	No (%)	Not sure (%)
Dental hygiene products, for example, toothbrushes, fluoride toothpaste, floss, and interdental brushes	206 (100)	–	–
Natural-based dental hygiene products, for example, teatree/manuka/propolis toothpastes, and sprays	164 (79.6)	38 (18.4)	4 (1.9)
Sensitive teeth toothpastes	206 (100)	–	–
Teeth-whitening products	183 (88.8)	23 (11.2)	–
High fluoride oral care products, for example, Colgate Neutrafluor 5000 toothpaste	29 (14.1)	55 (26.7)	122 (59.2)
Alcohol-based antibacterial/plaque mouthrinses	187 (90.8)	15 (7.3)	4 (1.9)
Alcohol-free antibacterial/plaque mouthrinses	203 (98.5)	2 (1)	1 (0.5)
Chlorhexidine containing mouth products (gels/mouth rinses)	198 (96.1)	6 (2.9)	2 (1)
Fluoride-based mouth-rinses	110 (53.4)	65 (31.6)	31 (15)
Recaldent® (CPP-ACP)-based products	8 (3.9)	140 (68)	58 (28.2)
Dry mouth products	128 (62.1)	70 (34)	8 (3.9)
Sugar-free confectionary and gum	143 (69.4)	55 (26.7)	8 (3.9)
Orthodontic wax	37 (18)	149 (72.3)	20 (9.7)
Denture adhesive products	190 (92.2)	14 (6.8)	2 (1)
Denture cleansers	197 (95.6)	8 (3.9)	1 (0.5)
OTC products for toothache/oral-related pain	203 (98.5)	3 (1.5)	–
OTC products for mouth ulcers/sores	203 (98.5)	2 (1)	1 (0.5)
OTC products for oral thrush	164 (79.6)	37 (18)	5 (2.4)
Dentafix filling repair and cap repair products	17 (8.3)	180 (87.4)	9 (4.4)
Dentist in a Box® dental emergency kits	9 (4.4)	190 (92.2)	7 (3.4)
Other	3 (1.5)	180 (87.4)	23 (11.2)

Table 4: Consultation time, reference, and acceptability to receiving oral health advice from community pharmacist

		Frequency (%)
Consultation time	<1 min	4 (1.9)
	1–3 min	108 (52.4)
	3–5 min	79 (38.3)
	>5 min	15 (7.3)
Follow or refer to any resources or guidelines	No	181 (87.9)
	Yes	25 (12.1)
Acceptability	Always	21 (10.2)
	Most of the time	120 (58.3)
	Sometimes	58 (28.2)
	Hardly every	3 (1.5)
	Unsure	4 (1.9)

children (44.2%), toddler (28.6%), infants (15%), and lastly pregnant or nursing mothers (14.5%) as shown in Figure 1. Consultation time, reference, and acceptability to receiving oral health advice from community pharmacist are shown in Table 4. Approximately half of the participants spent 1–9 min in oral health consultation with their patients. Only about 2% of participants spend less than 1 min in the oral health consultation. Most community pharmacists in both Kuala Lumpur and Selangor do not refer to any references or guidelines when providing oral health advice (87.9%). For those who did refer to references or guidelines, the most commonly used references were MIMs and Micromedex. Most of the participants (60%) believed that health consumers were receptive to receiving oral health-care advice.

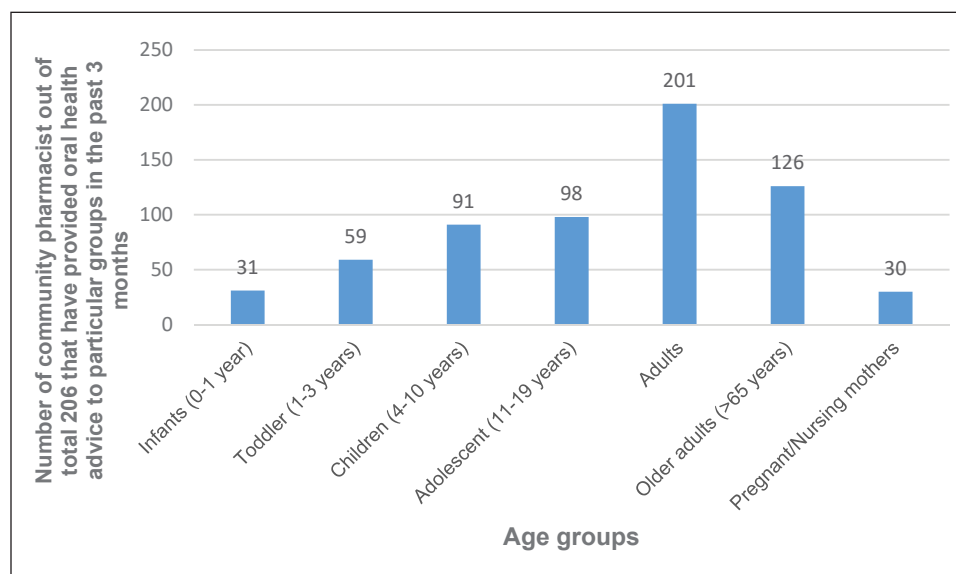


Figure 1: Age groups that have consulted community pharmacist relating to oral health

Table 5: Pharmacist opinions regarding different aspects of pharmacy practice in oral health care

	Strongly agree (%)	Agree (%)	Neither agree or disagree (%)	Disagree (%)	Strongly disagree (%)
Pharmacists have an important role to play in promoting oral health care in the community	52 (25.2)	138 (67.0)	14 (6.8)	2 (1.0)	0 (0)
I am comfortable looking inside a patient's mouth to identify/diagnose oral health issues	15 (7.3)	95 (46.1)	70 (34.0)	24 (11.7)	2 (1.0)
Identifying/diagnosing oral health issues and making appropriate evidence-based product recommendations is part of my professional responsibility	40 (19.4)	122 (59.2)	37 (18.0)	7 (3.4)	0 (0)
I would be interested in receiving further training to better identify/diagnose oral health issues and make appropriate evidence-based product recommendations for my patients	62 (30.1)	133 (64.6)	9 (4.4)	2 (1.0)	0 (0)
Offering oral health care programs/services in pharmacies is a good use of time and money	28 (13.6)	113 (28.2)	58 (28.2)	7 (3.4)	0 (0)
I would be interested in working collaboratively with other health-care professionals in the local area to support better oral health for the community	49 (23.8)	134 (65.0)	20 (9.7)	3 (1.5)	0 (0)

The pharmacists were asked about the opinions regarding different aspects of pharmacy practice in oral health care using a 5-point rating Likert scale [Table 5]. Nearly all pharmacists strongly agreed or agreed (95%) that they would be interested in receiving further training to better identify/diagnose oral health issues and make appropriate evidence-based product recommendations for their patients and they had an important role to play in promoting oral health care in the community. Majority of the pharmacists strongly agreed or agreed (88%) that they would be interested in working collaboratively with other health-care professionals in the local area to support better oral health for the community and identifying/diagnosing oral health issues and making appropriate evidence-based product recommendations

was part of their professional responsibility. Figure 2 represents community pharmacists' interest regarding incorporating prevention, early intervention, and referral to oral health-care services within community pharmacies. This includes but is not limited to performing oral health services such as dental cavity risk assessments, screening, and dental practitioner referral programs, fluoride varnish application, providing smoking cessation, and patient education or guidance to promote and maintain good oral health. The participants showed an overall positive response to these services and most of them supported integrating oral health services into the community pharmacy. However, only around 60% of them would be interested in performing oral health assessment and preventive services in the community.

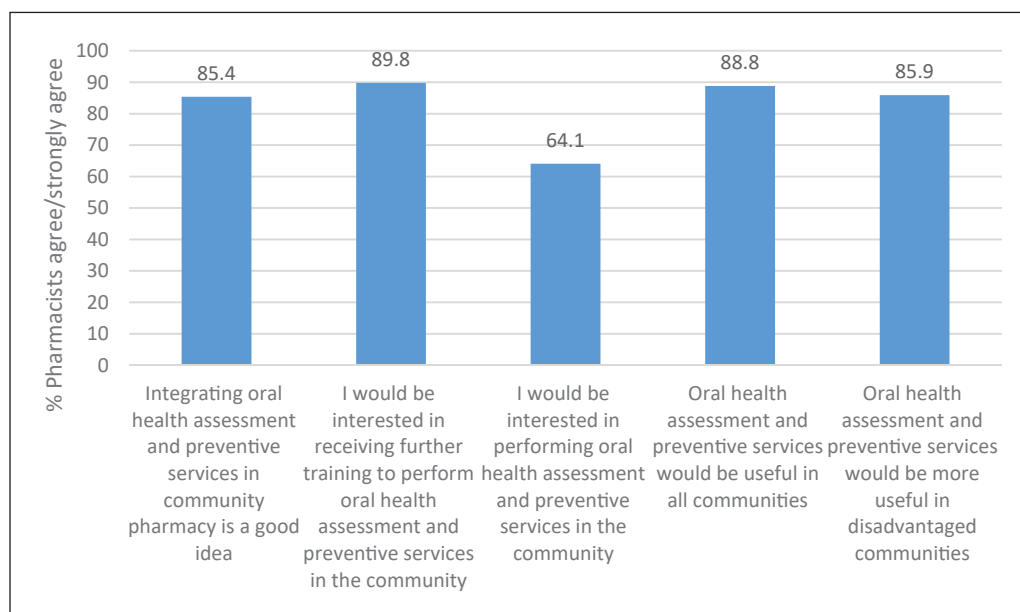


Figure 2: Pharmacist attitudes toward the provision of oral health assessment and preventive services

Table 6: Factors that would improve the ability of pharmacies to promote better oral health in Malaysia

	Frequency (%)
Further training for pharmacists	175 (85.0)
Pharmacy-specific practice guidelines, decision support pathways, information, and educational resources for oral health promotion/management of oral health issues	168 (81.6)
Private counseling/consultation to support oral health-care roles in pharmacy	127 (61.7)
Further training for pharmacy assistants	122 (59.2)
Payment for provision of additional oral health assessment and preventive services in my pharmacy	82 (39.8)
Extra staff to provide appropriate advice, counseling, and support to assist customers	79 (38.3)
Payment for providing oral health advice	70 (34.0)
Other	6 (2.9)

In addition, the pharmacists were asked regarding the factors that they feel would improve the ability of pharmacies to better promote oral health care in Malaysia [Table 6]. The majority of the participants felt that further training for pharmacists would improve the ability of Malaysia's pharmacies to better promote oral health care (85%). Moreover, they were asked about their preferred format to receive training. Most of the pharmacists preferred face to face (79.6%) and the online format to receive training on how to identify/diagnose and manage oral health problems (70.4%). Participants also preferred face-to-face and online format to receive training on providing oral health assessment and preventive services (169 [82.0%]; 138 [67.0%]). Most pharmacists believed that oral health knowledge/training would be best delivered during continuing professional development (CPD) followed by within their undergraduate degree (170 [82.5%] and 142 [68.9%], respectively).

DISCUSSION

The findings showed that around 70% of the participants provided up to five oral health consultations and OTC products recommendation regarding oral health each week, 10% lesser as compared with the study conducted by Christopher *et al.*^[10] Most of the community pharmacists (193 of 206) who responded to the questionnaire provided OTC treatments for oral health presentations. Almost all oral health products that were listed in the questionnaire were stocked in the community pharmacies across Kuala Lumpur and Selangor except high-fluoride oral care products, Recaldent[®], orthodontic wax, Dentafix filling repair, and Dentist in a Box[®] dental emergency kit. The reason less than half of the pharmacies stocked these five products is not entirely known. It could be because of low demand from the public or the need for more specific professional advice or skills on the usage of such products.^[13]

According to the report of Malaysia Health Systems Research (MHSR), there is a growing trend toward excessive spending on secondary and tertiary care relative to primary care by the public, which likely contributes to higher costs and worse health outcome.^[14] The results indicated that more than half of the participants referred the consumer to dental or medical practitioners when appropriate and identify signs and symptoms of oral health problems in patients. Majority of the participants believed that health consumers were receptive toward oral health advice given. The previous findings showed that community pharmacists in Malaysia offer a trusted environment as a potential oral health-care resource and can be expected to take on more responsibilities as oral health-care providers.^[15] Generally, the high cost of dental treatments can be avoided by effective prevention and oral health promotion measures.^[1,16] This study indicated that less than half of the participants offered oral health promotion activities to provide education and raise awareness of issues relevant to oral health. This may attributed to the lack of knowledge or training in the oral health-care field, lack of staff training resources, and lack of oral and dental health educational promotion materials for consumers which were barriers reported by the participants to furthering their role in oral health care. This is not surprising as only 12% of pharmacists referred to references or guidelines which is lower compared to pharmacists in Australia (15.8%) due to the lack of pharmacy-specific practice guidelines regarding oral health in Malaysia.^[10]

Majority of the participants viewed positively of integrating oral health assessment and preventive services in the community pharmacies. Despite having a lower prevalence of dental caries among children of age five than those in Malaysia's neighboring countries, caries prevalence and DMFT status for Malaysian adults aged 35–44 years and teenagers are higher than that of in Singapore and Thailand. [The DMFT Index is the sum total of the number of teeth decayed (D), missing/extracted (M), or filled (F)].^[17] Therefore, there is a need for oral health assessment and preventive services within the community pharmacies to improve the oral health outcome of the community and reduce the burden associated with the high cost of dental treatments.

The most commonly reported oral health condition that the pharmacists were confident in identifying signs or symptoms of mouth ulcer, oral thrush, and poor general oral hygiene practices. Of 25 oral health conditions, only less than half of the pharmacists

were confident in identifying 14 of the conditions, this finding was consistent with a previous study.^[10] This could be due to the lack of pharmacy-specific guidelines to refer to as mentioned, leading to lesser confidence to advice on different diseases related to oral health care. The other reasons that majority of the pharmacists were confident in only a few oral health conditions could be the lack of knowledge or training in this field which was reported as the highest perceived barriers to furthering their role in oral health care. A study conducted to assess Malaysia pharmacy students' knowledge, attitude and practice toward oral health revealed that there was lack of oral health knowledge among the pharmacy students, indicating that oral health should be given emphasis in the pharmacy undergraduate curricula.^[12] A practical approach to this would be forming an interprofessional partnership with dental associations to develop pharmacy-specific evidence-based guidance on oral health-care topics and enhance the pharmacy undergraduate curricula by emphasizing on oral health topics. This is in concert with the belief of the Ministry of Health Malaysia which recognizes that the health of Malaysians can only be improved through the interprofessional collaborations of all health professions.^[6] Pharmacists would then be better equipped to provide oral health services in the community pharmacies.

Most of the pharmacists in this study preferred the face-to-face or online training during CPD followed by training within their undergraduate degree or studies. This presents an opportunity for Malaysian pharmacy professional bodies to form collaborative partnerships with Malaysian dental associations/schools to develop evidence-based CPD programs in oral health care tailored for community pharmacists. This study also shows that the scope of oral health in pharmacy curricula could be expanded through this interprofessional collaboration to further equip the pharmacy students with sufficient knowledge to be able to deal with oral health inquiries confidently in their profession. Early exposure of pharmacy students to collaborative practices through interprofessional education experiences enhances the awareness of the role of the dentist, further improving patients' outcome.^[4]

STRENGTHS AND LIMITATIONS

This study is considered the first (to the best of our knowledge) national study evaluating the belief, practices, and attitudes of community pharmacists toward dental care. Our study targeted pharmacists practicing in many areas in Kuala Lumpur and

Selangor, which provides a representative sample and ensures the generalizability of our finding. However, some researchers have voiced their concern over the applicability of such surveys; they remain an interesting tool that offers accurate information about belief, attitude, and practice that can be used for educational purposes

The study has few limitations; the sampling method that is vulnerable to selection bias and influences beyond the control of the researcher. In addition, the number was not sufficient to conduct further biostatistical analysis. This is due to the limited time of the data collection, which may potentially limit the generalizability of the findings. However, the sample size obtained in this study allowed us to capture a range of Malaysian pharmacist and pharmacy assistant descriptive responses. Finally, it may be self-reported and subject to respondent recall and social desirability bias.

CONCLUSIONS

Community pharmacists across Kuala Lumpur and Selangor states do already provide some degree of oral health services and they expressed a positive attitude to gain further their knowledge in this field through training to further improve the ability of pharmacies to provide better oral health-care in Malaysia. In addition, this study provides evidence for the need of an interprofessional partnership between the Malaysian pharmacy professional bodies with Malaysian dental associations to develop, implement, expand, and evaluate evidence-based resources, guidelines, the scope of oral health in pharmacy curricula, and services to deliver improved oral health care within all Malaysian communities. Community pharmacists are expected to take on more responsibilities as oral health-care providers.

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Conflicts of interest

There are no conflicts of interest.

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