

ORIGINAL ARTICLE

Qualitative Explorations of Malaysian Community Pharmacists Towards Their Perceptions and Participations in Dyslipidemia Care Services

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ABSTRACT

Background: Dyslipidemia is a significant health concern in Malaysia. Community pharmacists (CPs) are considered first-line healthcare professionals and can contribute to a huge role in dyslipidemia management. However, the roles of CPs are still considered as underutilized. CPs perception and participation in providing dyslipidemia care services in Malaysia have yet to be explored. Therefore, the purpose of this study is to explore the perception and present participation of CPs in providing dyslipidemia care services. **Methods:** A qualitative study with in-depth face-to-face interviews was conducted from March 2023 to May 2023. The semi-structured interview guide was reviewed by the panel experts. Verbatim transcription using the audio recordings of the interviews was conducted and turned into the research's textual data. Thematic analysis was used to identify and characterize the emergence of themes. **Results:** Three key perception subthemes emerged: the importance of dyslipidemia care services, accessibility of CPs, and the positive impact of these services. For the current participation theme, subthemes included available services, preferred service timing, and the initiating party for cholesterol screening. **Conclusion:** Overall, CPs demonstrated a positive perception of dyslipidemia care services and actively participated in certain aspects of dyslipidemia management. However, their roles remain underutilized, particularly in areas such as risk assessment and patient follow-up. The findings from this study highlight the need for targeted strategies and support systems to further empower CPs in optimizing their contributions to dyslipidemia care.

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Introduction

An abnormal concentration of one or more lipids in the blood is known as dyslipidemia. It is characterized by decreasing levels of high-density lipoprotein cholesterol (HDL-C) and raised levels of triglycerides (TG), total cholesterol (TC), and low-density lipoprotein cholesterol (LDL-C) (1). The prevalence of dyslipidemia is unacceptably high and continues to rise globally (2). The National Health and Morbidity Surveys (NHMS) show that dyslipidemia was more common in Malaysia in 2006 (20.7%), 2011 (35.1%), and 2015 (40.7%), with

a decline to 40.0% in 2019 (3). Although the prevalence decreased slightly from 40.7% to 40% in 2019, the situation remains concerning as nearly half of the population is affected by dyslipidemia. A study conducted in Malaysia urged for actions to be taken by various organizations such as primary healthcare providers, state health authorities, public, private and university hospitals (4). These organizations should conduct many health promotion activities to increase awareness of the community with regard to dyslipidemia and other modifiable risk factors of cardiovascular diseases (CVD) (4). This is also supported by Gebreegziabiher et al in their study which asserted that health initiatives which include the various organizations are required for early detection of dyslipidemia (5).

Dyslipidemia significantly contributes to the global

burden of CVD (6). Lowering LDL-C is the main goal for CVD therapy and prevention since dyslipidemia, in particular increased LDL-C, is a causative risk factor for CVD. CVD is the most common non-communicable disease globally, encompassing peripheral vascular disease, cerebrovascular disease (stroke), and coronary heart disease (CHD). It is responsible for 31% of all deaths globally. (7). Besides being the leading contributor to global mortality, CVD also leads to high healthcare expenses (6). Thus, the disease must be well-managed with designated management according to current national and international guidelines (5).

In terms of dyslipidemia management, CPs play a significant role in proper interventions due to their accessibility to society (8). Nevertheless, CPs were found to be underutilized and have a lack of involvement in handling disease prevention and management due to several challenges. This is supported by studies conducted by Loh and Owen which discovered that the majority of the CPs claimed that they have insufficient time and staff for them to provide pharmaceutical care services (9,10). Dyslipidemia care services are services that can be provided by CPs including risk assessment, screening, patient education on pharmacological and non-pharmacological management of dyslipidemia and emphasis on therapeutic lifestyle changes (11). The extent of dyslipidemia management in the community pharmacy setting is still yet to be explored.

Thus, the purpose of this study is to explore the perception and current participation of CPs in providing dyslipidemia care services in the setting of community pharmacy. The data obtained in this study can be used to further strategize on solutions and supports that can be provided to CPs to assist them in optimizing their roles effectively. As a result of improved dyslipidemia care services provided by CPs, dyslipidemia can be prevented as early as possible, leading to better dyslipidemia control in the future.

Methods

Study design

From March 2023 to May 2023, a cross-sectional qualitative study using a phenomenology approach was carried out. The choice of qualitative design was made for a number of reasons. A comprehensive examination of respondents' opinions, experiences, and objectives is made possible by the adaptable qualitative design (12). Additionally, a wide range of ideas and opinions on the themes are generated using qualitative methods (13). On top of that, in less-explored research topics, qualitative methodologies aim to close any gaps left by survey-based research (14). Accordingly, qualitative interviews were a better option for inductive approaches for generating ideas and hypotheses with considerably greater research potential than any other models, in line with the objectives of this study (15).

Sampling and study population

A purposive and convenient sampling strategy was employed in this study. The inclusion criteria required community pharmacists (CPs) to be registered with the Pharmacy Board Malaysia and to have at least three years of experience working in community pharmacies. The three-year threshold was chosen to ensure that participants had adequate exposure to the daily operations of community pharmacies and had developed sufficient practical experience in providing pharmaceutical care services. Additionally, this period is considered sufficient for pharmacists to encounter and manage a diverse range of dyslipidemia cases, enabling them to provide informed perspectives on the challenges and opportunities associated with dyslipidemia care services in community pharmacy settings. CPs who were working part-time were excluded from this project. In addition, pharmacists who are involved in administrative and management work are excluded in this study. These two criteria were set to be excluded due to the limited experience and exposure of these practicing CPs in dyslipidemia management.

To recruit the informants, the information about the study was sent via relevant social media platforms, WhatsApp and Telegram groups comprising of pharmacists as the members of these platforms. Interested pharmacists will register themselves using the registration link provided. They will be contacted by the researcher for details of the study afterward. Other than that, pharmacists who are known to fulfill the criteria were also approached via phone and email. They were briefed about the purpose of the study, reasons why they were eligible to participate and emphasis on the importance of their contributions to the pharmacy profession were explained. Interested pharmacists were then included in the study.

Sample size

Interviews were conducted with 12 informants, with the sample size determined by data saturation. Saturation was considered achieved when no new themes emerged. The study followed the 'plus-one' concept, where one additional interview was conducted after the point of perceived saturation to confirm no further themes arose. Furthermore, Entwistle and colleagues (16) suggested that a sample size of 12 is adequate for exploring perceptions and experiences among relatively homogeneous groups.

Study tool

The interview guide was developed based on previous literature and covered two main categories: (1) community pharmacists' perceptions of providing dyslipidemia care services and (2) their current participation in offering these services. It included open-ended questions to encourage informants to share additional insights and facilitate an in-depth exploration of dyslipidemia care services by community pharmacists.

The semi-structured interview guide was independently reviewed by a panel of three academic experts, all of whom are registered pharmacists, followed by an additional review by two practicing CPs. Feedback on the clarity and relevance of the questions was incorporated before finalizing the guide.

The interviews were conducted by the principal investigator, a female undergraduate pharmacy student. Several strategies were implemented to minimize bias and ensure the accuracy of findings. First, the principal investigator underwent comprehensive training in qualitative research interviewing techniques. Second, the interviews followed a semi-structured guide that had been thoroughly reviewed by academic pharmacists with expertise in qualitative research. Third, interview transcripts were returned to participants for member-checking, allowing them to review and verify their responses to prevent misinterpretation. Additionally, to mitigate social desirability bias, participants were assured of confidentiality, and they were encouraged to provide honest responses without concern for judgment. The interviewer also maintained a neutral stance throughout the sessions to minimize the influence of her role as a student on the responses given by pharmacist participants.

Study procedure

The interviews were conducted online via the Google Meet platform, with each session lasting approximately 20–30 minutes. Prior to the interview, participants were briefed on the study's purpose and research background, followed by an informal conversation to establish rapport and create a comfortable environment for open discussion. Verbal consent was obtained after assuring participants of confidentiality. Additionally, they were informed that the sessions would be recorded, and their consent for recording was secured.

The interviews were audio and video recorded, then transcribed verbatim to generate textual research data. Transcriptions were carried out independently by the interviewer rather than an outsourced transcriber, allowing for deeper engagement with the data and the development of emergent insights. To enhance trustworthiness and minimize bias, data coding was conducted by both the principal investigator and an

independent reviewer. Any discrepancies in coding were discussed and resolved through consensus. Additionally, reflexivity was maintained throughout the process, with the researcher continuously reflecting on potential biases and their influence on data interpretation.

Data analysis

Using both deductive and inductive methods, a thematic analysis is a common qualitative analysis technique that was utilized to identify and characterize the examples of themes from the interview guide (17). The analysis was done manually. The meaning of informants' responses was categorized, and codes were assigned to the categories of their perception and present participation in providing dyslipidemia care services. Following that, codes with conceptually similar meanings were combined and marked as themes. Coding and categorization were repeated several times, and relevant adjustments and corrections were made during the analysis process based on author discussions.

Ethical Consideration

This study received ethical approval from the Faculty of Pharmacy, Universiti Teknologi MARA, with the reference number REC/(PH)/UG/057/2023. To ensure confidentiality, all participants were assigned unique identification codes, and no personally identifiable information was recorded or disclosed. Data were securely stored in password-protected files, accessible only to the research team. Additionally, all interview recordings and transcripts were anonymized before analysis to protect participants' identities. Participants were informed about the study's purpose, and verbal consent was obtained before the interviews. They were also assured that their responses would remain confidential and used solely for research purposes.

Results

The findings that emerge from the interview process and subsequent data analysis are described in this result section which provides insight on into the major categories. First and foremost, a brief informants' characteristics is presented in Table 1. The major categories that emerged following the thematic analysis include the perception and present participation of CPs in providing dyslipidemia care services.

Table 1: Informants' characteristics

Characteristics	N= 12
Gender	
Male	3
Female	9
Race	
Malay	9
Chinese	1
Indian	2
Type of community pharmacy	
Independent pharmacy	6
Chain pharmacy	6
Years in service	
3-6 years	9
7-9 years	2
>10 years	1

Sociodemographic characteristics of informants

A total of 12 CPs participated in the study. The sociodemographic characteristics of the informants are listed in Table 1. The majority of the informants are female.. Malay is the highest race of the informants, compared to Chinese and Indian. Half of the informants work in independent pharmacies and another half of them work in chain pharmacies. Most of the informants have been servicing in the community setting for 3 to 6 years, while two of them have been servicing within for seven to nine years followed by one of them who had services for more than 10 years.

Theme 1: Perception of CPs towards the importance of dyslipidemia care services

Informants were asked about their perception in terms of their role in providing dyslipidemia care services. In general, all CPs stated that it is important to practice and provide dyslipidemia care services. The informants described that:

"The services are important to be practiced". – Informant 1 (3 years of experience in community pharmacy)

"It should be no problem to be provided as it is important". – Informant 2 (7 years of experience in community pharmacy)

Subtheme 1: Perception of positive impacts on the public

Majority of the participants agreed that when CPs offering and actively providing the services will help to increase the awareness of the public about the role of community pharmacy. The informants described:

"Community pharmacy is considered the first line for anything include consultation, and any health services". – Informant 3 (4 years of experience in community

pharmacy)

"So that public know that community pharmacy also have a pharmacist that they can believe in providing consultation". – Informant 4 (6 years of experience in community pharmacy)

Subtheme 2: Perception about the availability and ease of access of community pharmacies

In fact, more than half of them said that the services provided by community pharmacies are accessible to everyone. The informants described that as:

"It is easier for the patient to go to the community pharmacy because they can go to a community pharmacy anytime on the spot and do a check-up". – Informant 3 (4 years of experience in community pharmacy)

"Not everyone is available and afford to go to the hospital. In community pharmacy, they can go anytime anywhere". – Informant 8 (3 years of experience in community pharmacy)

Theme 3: Perception towards the impact of services

While half of them guaranteed that the services provided could be a medium for spreading health awareness to the public, especially dyslipidemia concerns. The informants conveyed as such when they stated:

"Actually, in between community pharmacy and the government sector, community pharmacy is more important because it has a role in spreading awareness". – Informant 1 (3 years of experience in community pharmacy)

"Always do the services so that people are aware of their health". – Informant 6 (20 years of experience in community pharmacy)

A number of the informants highlighted that the services provided by community pharmacies can indirectly sustain and tangentially lessen hospital traffic. They stated that:

"The community pharmacy also helps in reducing the traffic in the hospital". – Informant 4 (6 years of experience in community pharmacy)

"No need to go to the hospital, set appointment and wait, so we reduce the traffic". – Informant 8 (3 years of experience in community pharmacy)

Theme 2: Present participation of community pharmacists in providing the dyslipidemia care services

Informants were asked about their current participation towards in the provided services in terms of the services available, whether they provide the services daily or depends depending on any season and whether they are the one ones who are the first to offer the services. Three important subthemes of the current participation of CPs

were found which include; the type of dyslipidemia care services available, preferred timing to offer the services, and the first party to offer for cholesterol screening

Subtheme 1: : Type of dyslipidemias care services available

In terms of the dyslipidemia care services available, all of the informants do provide counseling, education, and consultation to the customers since they described it like:

“Then when we know the reading, we will do a consultation”. – Informant 2 (7 years of experience in community pharmacy)

“We will give counseling on pharmacological and non-pharmacological aspect”. – Informant 5 (5 years of experience in community pharmacy)

However, there are community pharmacies who have limited services provided for the dyslipidemia care. One-third of the informants only provide the basic blood cholesterol test and the remaining of them provide both basic and specific blood cholesterol test. The informants phrased that as:

“There are 2 tests which are basic and specific. The specific one has 6 reading include TC, TG, LDL, HDL, non-HDL, ratio of HDL and LDL”. – Informant 5 (5 years of experience in community pharmacy)

“We do conduct cholesterol test service. But this one is very basic service”. – Informant 8 (3 years of experience in community pharmacy)

More than half of the informants have a follow-up service as they described:

“We have a record book for patients. We record the results and suggest taking supplements. Then after finishing supplement for that month, patient will need to come back to the pharmacy for a test. So, we will closely monitor”. – Informant 5 (5 years of experience in community pharmacy)

“We will give one card, so they have to come back to the pharmacy. Usually for cholesterol, every 2 to 4 weeks follow-up”. – Informant 9 (8 years of experience in community pharmacy)

While less than half of them provide health screening service. The informants directly stated that:

“We do offer screening for them”. – Informant 5 (5 years of experience in community pharmacy)

“We do provide full health screening”. – Informant 11 (3 years of experience in community pharmacy)

In terms of risk assessment service, it is the least services provided by the informants. As only one of them described that:

“After doing the test, of course we have to get the patients’ medical history as well as family history”. – Informant 7 (4 years of experience in community pharmacy)

Theme 2: Preferred timing to offer the services

The second theme is that based on the time, they all provide the services available to their respective community pharmacies daily as they clearly stated:

“We provide everyday, it is just that the pace is less compared to when we have an event”. – Informant 1 (3 years of experience in community pharmacy)

“It will be provided everyday, evening and night are available. The demand is there”. – Informant 9 (8 years of experience in community pharmacy)

There are majority of them do contribute to extra activities which are events and promotion for dyslipidemia care services since they conveyed that as:

“We are often and actively moving to community areas doing an event”. – Informant 5 (5 years of experience in community pharmacy)

“We also go and open a booth at ‘surau’ and any places available and provide the screening to the community”. – Informant 8 (3 years of experience in community pharmacy)

Theme 3: The first party to offer for cholesterol screening

In terms of approaching the services, more than half of the informants stated that most of the time they offer the cholesterol screening service to the customers based on complaint and observation. The informants expressed that like:

“When we see a customer wanting to buy oats or fish oils, we know from there we asked the customers. Ask if the customer wanted to check, because if they do not check, how will they know the effectiveness of the supplement. If the customer brings her/his son/daughter, I will usually encourage the son/daughter to get checked also”. – Informant 1 (5 years of experience in community pharmacy)

“If the customer complaint of feeling unhealthy or sick, so we will offer to check”. – Informant 2 (7 years of experience in community pharmacy)

While some of them provide the services mostly when there is a request from customers as they stated:

“Because of the banner that we have in front of the

pharmacy, stated services provided, so from there the customers look at it and request to do the services". – Informant 5 (5 years of experience in community pharmacy)

"Many customers who request this cholesterol check are really educated and alert. Usually, he has the disease or has a family history of that". – Informant 6 (20 years of experience in community pharmacy)

Discussion

In general, all CPs have positive perception towards their role in the provision of dyslipidemia care services. Patient outcomes, healthcare systems, and general public health can all benefit from CPs' positive perceptions of their involvement in providing dyslipidemia care services. There are many advantages to CPs having a positive view of their involvement in providing care for dyslipidemia (18). CPs have a wide range of effects on public health, from their primary functions in dispensing medications to their more extensive involvement in globally recognized healthcare issues such as the dyslipidemia issue (18). Based on the findings above, there are two main categories that have been explored which are perception and participation.

Perceptions of community pharmacists in providing dyslipidemia care services

The first category on the perception of CPs towards the provision of dyslipidemia care services highlighted that the services are important to be provided and practiced. All CPs agreed that this service is important and should be implemented. It is their jobs and responsibilities. The 2017 Clinical Practice Guideline (CPG) by the Ministry of Health, Malaysia, emphasizes that each healthcare professional holds the responsibility for patient-centered management, tailoring care specifically to the needs and conditions of individual patients. This guideline reinforces the importance of personalized healthcare approaches to ensure optimal outcomes (11).

The provision of dyslipidemia care services offers several important benefits. Participants agreed that implementing these services enhances public awareness of the community pharmacist's role in dyslipidemia management. Consistent with previous studies, strengthening this role requires pharmacists to build strong relationships with customers, provide counseling, and offer essential related services (19). Additionally, by delivering patient-centered care services, pharmacists can demonstrate their value to the public (20). Community pharmacies are increasingly recognized for their contributions, particularly in managing complex medication regimens and chronic conditions. As one participant noted, these services serve as a vital platform for raising public health awareness, particularly regarding dyslipidemia.

Increasing public awareness of the services provided

by CPs is expected to encourage greater patient participation in dyslipidemia-related health activities, particularly lipid screening and risk assessment. In this role, CPs are responsible for providing patient education on lifestyle and dietary modifications while also emphasizing medication adherence. Enhanced patient engagement, comprehensive education, and adherence to treatment plans can ultimately lead to improved treatment outcomes (21).

Participants agreed that community pharmacy services are easily accessible to the public. As noted by Daly et al. (20), community pharmacies are among the most accessible and frequently utilized frontline healthcare providers. Their widespread availability and readiness to assist with various health concerns position them as key sources of health information and services (18–20). This accessibility can also help alleviate hospital congestion, as CPs serve as intermediaries between doctors and patients by providing medications, free medical advice, and health screenings without the need for appointments or extended wait times (19). Consequently, increased utilization of community pharmacy services for medication, counseling, and health assessments may reduce hospital overcrowding. Moreover, optimizing these services could help address the shortage of qualified hospital personnel, which has been linked to poor patient care and outcomes (22).

Additionally, community pharmacies primarily focus on disease prevention rather than treatment. Disease prevention is a critical aspect of public health, playing a key role in reducing the prevalence and incidence of various conditions (23). Its benefits extend beyond individual health, positively impacting communities and the healthcare system at large (23). Effective prevention strategies can lead to lower mortality rates, a reduced healthcare burden, improved individual productivity, and enhanced emotional well-being for caregivers.

In conclusion, positive perceptions of dyslipidemia care services offer numerous benefits. Such perceptions are expected to enhance CPs' participation and involvement in these services. Ultimately, fostering favorable perceptions can improve job satisfaction, contribute to better population health outcomes, and reinforce the role of community pharmacists as essential providers in comprehensive dyslipidemia management.

Present participation of community pharmacists in providing dyslipidemia care services

In terms of CPs present participation in providing dyslipidemia care services, it is found that most of them do provide the services actively. Most of the participants do participate in giving education on pharmacological and non-pharmacological treatment. This service is a must-have service in each community pharmacy since it has been determined as an essential service in community pharmacies (11).

(24,27). However, some CPs do not actively or frequently engage in dyslipidemia care services. Key services such as monitoring and screening tests were not provided by certain participants due to various barriers. Nearly half of the CPs did not participate in follow-up monitoring services. This finding aligns with studies conducted in Klang Valley, Malaysia, Jordan, and Saudi Arabia, where most CPs did not implement patient follow-up plans or monitoring (24–26). These studies examined CPs' practices and the barriers to providing pharmaceutical care services. Limited engagement in monitoring and follow-up care was primarily attributed to challenges such as insufficient knowledge, lack of skills, and time constraints. Consequently, undetected undesirable outcomes or unachieved therapeutic goals may arise (24,27).

Regarding cholesterol screening, only a few CPs participated, and those who did primarily offered basic total cholesterol (TC) screening without assessing other lipid parameters such as low-density lipoprotein cholesterol (LDL-C), triglycerides (TG), and high-density lipoprotein cholesterol (HDL-C). Additionally, risk assessment services were provided by only one participant, who assessed family history as the sole risk factor.

The management of dyslipidemia should be guided by the absolute risk of ischemic heart disease, utilizing risk charts based on Framingham data, as recommended by clinical guidelines (28). Given the established link between dyslipidemia and cardiovascular disease (CVD), an appropriate risk assessment approach, such as the Framingham Risk Score (FRS), should be implemented. FRS is a widely used tool for estimating an individual's 10-year risk of developing cardiovascular events, including myocardial infarction and cardiac-related mortality. This score is calculated by incorporating key risk factors such as gender, age, TC levels, HDL levels, systolic blood pressure, and smoking status (29). The total score derived from these factors determines the probability of developing CVD within a decade (30), providing valuable insight into the risk stratification of patients with dyslipidemia (31).

. Without appropriate risk assessment and comprehensive service provision, CPs have limited information to effectively implement lipid management guidelines tailored to specific types of dyslipidemia in individual patients (32). Although CPs are often the first point of contact for customers in community pharmacies, the provision of limited services may inadvertently contribute to the continued high prevalence of dyslipidemia.

Conclusion

In conclusion, dyslipidemia is a significant health concern in Malaysia. In the future, more cases of dyslipidemia will probably arise if there are no actions taken against

dyslipidemia cases. CPs who are considered first-line healthcare professionals to the public know that it is important for them to provide and practice dyslipidemia care services. However, their current participation in providing the services could be improved. Their full participation and limitless services provided by each community pharmacy will be important as it helps in improving dyslipidemia in public. This study found that it seems like CPs are willing to share and provide those services, however, it is hindered due to few limitations exist from the customers and their internal management such as headquarters.

This study has a few limitations. Firstly, the findings were not categorized into chain or independent pharmacies. In reality, these differences might contribute to the findings. Other than that, classification of the location of the pharmacies, either located in suburban, urban or rural area might also play a significant role. Specific categorization on the mentioned parameters may be included in future studies to improve the findings obtained. Despite of these limitations, findings obtained in this study are still able to provide rich and in-depth data with regard to CPs perception and participation. Future research may be conducted to explore barriers and suggestions to improve dyslipidemia care services further. Supports should be given to CPs to encourage them participate in dyslipidemia care services actively.

Apart from that, it is also suggested that community pharmacies and accountable authorities or related healthcare agencies bodies are able to make some interventions to educate the public on the importance of participating in dyslipidemia care services and dyslipidemia disease. This is important to improve the public's awareness and knowledge which consequently could increase their motivation to take care of their health. In addition, CPs also need to ensure to provide unlimited services and continuous monitoring as well as follow-up care for individuals with dyslipidemia. With that, it can indirectly optimize high-quality dyslipidemia care services that can be achieved in the near future. Thus, ongoing interventions and efforts like dyslipidemia care services need to be continued to combat dyslipidemia effectively.

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