





Original Research

A qualitative exploration of community pharmacists' practices and beliefs of pretravel pharmacist consultations for prospective Hajj and Umrah pilgrims

Norazlin Abdul Kadir , Mohd Shahezwan Abd Wahab , Azyyati Mohd Suhaimi , Noordin Othman 

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Abstract

Introduction: The Hajj and Umrah pilgrimages to Mecca, Saudi Arabia, are recognized as two of the largest mass religious gatherings worldwide. Due to the vast number of participants, these pilgrimages pose significant risks to pilgrims, including the transmission of communicable diseases and exposure to various environmental hazards. Community pharmacists (CPs) providing pretravel pharmacist consultations (PTPC) play a pivotal role in mitigating these risks and promoting the health and safety of prospective Hajj and Umrah pilgrims.

Objective: This study aims to explore the practices and beliefs of CPs concerning PTPC for prospective Hajj and Umrah pilgrims.

Methods: A semi-structured interview study was conducted with 24 CPs in Selangor and Kuala Lumpur, Malaysia. The Theoretical Domains Framework (TDF) was utilized to guide both the development of the interview protocol and the subsequent data analysis. Face-to-face interviews were conducted to explore CPs' practices and beliefs, particularly the barriers and facilitators associated with providing PTPC for prospective Hajj and Umrah pilgrims. The interviews were audio recorded, transcribed verbatim, and analyzed using qualitative content analysis.

Results: The study identified seven distinct activities performed by CPs, with the provision of travel health education being the most commonly reported. Beliefs related to PTPC were categorized into fourteen domains of the TDF. The findings indicate that CPs are generally motivated to provide PTPC services for these pilgrims. However, they also reported significant knowledge gaps, particularly regarding Hajj and Umrah travel guidelines and health issues specific to the pilgrimage. Moreover, CPs encountered several challenges, including staff shortages, limited time, low confidence in handling regulatory issues and disease management, and a perceived lack of support from physicians.

Conclusion: The findings of this study suggest that strengthening the provision of PTPC for prospective Hajj and Umrah pilgrims can be accomplished through several key strategies. These include enhancing education and training for CPs, improving access to relevant resources, fostering interprofessional collaboration, and implementing supportive policies to facilitate the delivery of these services.

Keywords: Community pharmacist, Hajj, Umrah, mass gathering, travel medicine, qualitative, theoretical domains framework, Malaysia

Norazlin Abdul Kadir. MSAP, Department of Pharmacy, Kuala Lumpur Health Clinic, Ministry of Health Malaysia, 53200, Kuala Lumpur, Malaysia; Department of Pharmacy Practice and Clinical Pharmacy, Faculty of Pharmacy, Universiti Teknologi MARA, 42300, Puncak Alam, Selangor, Malaysia. norazlin6133@gmail.com

Mohd Shahezwan Abd Wahab*. PhD (Pharmaceutical Care), Department of Pharmacy Practice and Clinical Pharmacy, Faculty of Pharmacy, Universiti Teknologi MARA, 42300, Puncak Alam, Selangor, Malaysia. mohdsh2790@uitm.edu.my

Azyyati Mohd Suhaimi. PhD, Faculty of Pharmacy, Universiti Sultan Zainal Abidin, 22200, Besut, Terengganu, Malaysia. azyyatisuhaimi@unisza.edu.my

Noordin Othman. PhD, Quality Use of Medicines in Umrah and Hajj Pilgrimage Research Group, Department of Pharmacy Practice, College of Pharmacy, Taibah University, 30001, Madinah, Saudi Arabia; School of Pharmacy, Management and Science University, University Drive, Off Persiaran Olahraga, 40100 Shah Alam, Selangor, Malaysia.

INTRODUCTION

The Hajj and Umrah pilgrimages to Mecca, Saudi Arabia, are among the largest mass religious gatherings in the world. In 2019, the number of Muslim pilgrims reached 10 million, and projections indicate an increase to 30 million by 2030.¹ Between 2022 and 2023, the Malaysian Umrah pilgrims numbered 300,000 over an eight-month period.² Additionally, the number of Hajj pilgrims exceeded 30,000 in 2023.³ The Hajj and Umrah pilgrimages involve religious rituals performed over an extended period in which most international Umrah pilgrims typically spend around two weeks in Mecca and Madinah,⁴ whereas the average stay for Hajj pilgrims is approximately 30 days.⁵

The large gatherings during these pilgrimages pose several risks to pilgrims including communicable diseases and environmental risks.^{6,7} Moreover, inadequate management of existing chronic diseases mainly due to non-adherence to medications, and improper use of medication can contribute to negative health implications.^{8,9} Medication non-adherence and insufficient medication preparedness are widespread among Hajj and Umrah pilgrims. For example, a study revealed that 16% of pilgrims with chronic diseases reported non-adherence to their medications and brought an insufficient medication supply during Hajj.¹⁰ Improper medication storage during the



pilgrimage is also a concern,¹¹ with pilgrims reported to be using medications that are stored inappropriately.¹² Medications that are stored improperly, such as in the case of insulin, can lead to a loss of effectiveness, resulting in ineffective treatment.¹³ Additionally, low knowledge about travel vaccinations¹⁴ and poor compliance with recommended influenza and pneumococcal vaccinations among at-risk pilgrims have been reported.⁸ These problems can increase the morbidity and mortality among pilgrims.^{10,15,16}

In light of these issues, there is a pressing need for proactive measures from healthcare professionals including community pharmacists (CPs) to prevent infectious diseases and environmental risks among pilgrims, as well as to optimize their disease and medication management, well-being and personal safety. In Malaysia, CPs are highly accessible and actively engage in various health promotion activities such as diabetes management, smoking cessation, and weight counseling. Consequently, they are in an ideal position to provide guidance on travel health including those planning for Hajj and Umrah pilgrimages.¹⁷ During pretravel pharmacist consultations (PTPC) with clients preparing for Hajj or Umrah pilgrimage, CPs can offer advice on travel vaccination requirements, identify the necessity for preventive medications, discuss disease and medication management, ensure medication adherence, and recommend the preparation of a first aid kit.¹⁷⁻²⁰

Despite the huge annual number of Malaysian Hajj and Umrah pilgrims, and the potential roles of CPs in ensuring their well-being, CPs' provision of PTPC to prospective Hajj and Umrah pilgrims as well as their beliefs of the service are not well documented. While some studies have investigated the involvement of Malaysian CPs in travel health services,²¹⁻²³ these studies did not delve into the detailed practices of PTPC for prospective Hajj and Umrah pilgrims, nor did they explore the beliefs, including barriers and facilitators surrounding the practice. The distinct health-related needs of Hajj and Umrah pilgrims, as compared to other travelers, warrant a specific focus on the role of CPs in addressing these needs. Furthermore, CPs may hold perspectives on PTPC for prospective Hajj and Umrah pilgrims that differ from their perspectives on usual patient consultation. Therefore, this study aims to explore CPs' provision of PTPC for prospective Hajj and Umrah pilgrims and identify their beliefs that facilitate or impede their provision of the service. This study can have the potential to inform the development of tailored guidelines and training programs for CPs.

METHODS

Study design

A descriptive qualitative study was conducted using semi-structured interviews to explore the CPs' provision of PTPC for prospective Hajj and Umrah pilgrims and their beliefs. The study was conducted in line with the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines, and the findings are reported accordingly.²⁴ (Supplementary file 1)

The qualitative study utilized a phenomenological approach in order to uncover insights and gain an in-depth understanding of the real-life experiences of CPs in their respective settings. The study underwent review and approval by the Research Ethics Committee at Faculty of Pharmacy, Universiti Teknologi MARA, Malaysia. (REC/02/2022 (PG/MR/12) and was registered with the National Medical Research Register (NMRR ID-22-01207-MLA).

Theoretical framework for this study

In studying the factors associated with healthcare practices, various frameworks and theories can be utilized.²⁵⁻²⁷ In this study, the Theoretical Domains Framework (TDF) was employed to formulate the research questions, develop the interview guide, and analyze the data. This comprehensive framework integrates 33 behaviors and behavior change theories.^{25,28,29} The TDF proposes that the determinants of healthcare professionals' practices can be categorized into 14 domains, such as 'Knowledge', 'Skills', 'Social/professional role and identity', and 'Beliefs about capabilities' (Supplementary file 2). The TDF has been effectively used in exploration³⁰ of various topics such as medication adherence,³¹ information gathering during non-prescription medicine consultations,³² and the provision of reproductive health services for women undergoing opioid substitution treatment.³³ Given its comprehensive nature and usefulness in exploring multifaceted healthcare professionals' behaviors, the TDF presents itself as a suitable framework for studying the factors pertinent to PTPC for prospective Hajj and Umrah pilgrims.

Sampling of study informants

CPs were recruited between June and December 2022 using purposive sampling followed by snowball sampling.²⁹ The recruitment process aimed to encompass maximal variation in the participants, considering factors such as age, gender, years of experience in the community pharmacy setting, and type of pharmacy (independent or chain). The study included full-time registered CPs working in community pharmacies located in Selangor and Kuala Lumpur who are proficient in either English or Malay language, with at least one year of experience, and actively engaged in direct consultation with pharmacy clients. Provisionally registered and locum CPs were excluded from participation. In this study, Selangor and Kuala Lumpur were chosen due to their high density of community pharmacies compared to other states³⁴ and their significance as major departure points for Malaysian Hajj and Umrah pilgrims.³⁵⁻³⁷

Initially, five participants were purposively selected from the researchers' network. Subsequently, these participants were requested to nominate additional individuals for participation. Participants were invited to take part in the interview process through telephone calls, emails, or face-to-face invitations. Upon expressing their willingness to participate, these individuals were further briefed about the study. Subsequently, interview appointments were scheduled at mutually convenient locations with the interviewer (NAK). The data collection process concluded upon reaching data saturation.



Study Instrument

A semi-structured interview guide and interview protocol, based on the TDF, were developed for use in the interviews. Additionally, participants completed a demographic profile form to provide necessary demographic data. The interview topic guide underwent review by two academicians specializing in travel medicine and psychology.³⁸ Following this, the interview topic guide (Supplementary file 3) underwent a pilot test with five CPs who met the same inclusion criteria as those in the actual study. The purpose of this pilot test was to evaluate the clarity of the questions, the duration of the interviews, and to identify any potential probes within the guide. The data from this pilot sample was not included in the main study analysis. Subsequently, based on the insights gained from the pilot study, necessary revisions were made to refine the interview topic guide.

Data collection

The interviews were conducted face-to-face by NAK from July to December 2022 at the CP's workplace, such as the consultation room or meeting room. Prior to the interview sessions, all CPs provided written, informed consent, and agreed to the audio recording of the interviews. The interviews, which lasted between 25 to 93 minutes, were conducted in either English or Malay, based on the informant's preference, and were carried out in a single session without any repeat interviews. Field notes were taken during the interviews to capture the informants' ideas and identify additional suitable probes. To acknowledge their participation, participants were offered an honorarium of MYR 50 (~ USD 10.5) to offset related expenses. NAK, who conducted the qualitative interviews, is a female postgraduate PhD candidate and a practicing pharmacist. She has received training in qualitative interview and data analysis.

Data analysis

Following the interviews, NAK transcribed the recordings verbatim, and subsequently anonymized the transcriptions and cross-referencing them with the audio recordings to ensure accuracy. Transcripts were returned to informants for comment or correction. The transcripts were then uploaded to NVivo™ version 12 (QSR International Pty Ltd) to facilitate data management during the analysis process. Qualitative content analysis was employed to analyze the data.

The qualitative content analysis process entailed meticulously listening to audio recordings and reviewing transcripts multiple times to familiarize the content. Following the recommended data analysis procedures described by Mayring,³⁹ Elo and Kyngäs,⁴⁰ Zhang and Wildemuth,⁴¹ a hybrid approach to content analysis was adopted, integrating both inductive and deductive approaches. In order to maintain coding consistency, a coding guide was developed (Supplementary file 2).

In this study, the practices of CPs in providing PTPC for prospective Hajj and Umrah pilgrims were identified and categorized using inductive qualitative data analysis, while their beliefs regarding PTPC were identified and categorized using deductive qualitative data analysis guided by the TDF.

Initially, two researchers (NAK and MSAW) independently coded and analyzed six interview transcripts (25%, 6/24). Discrepancies in the findings were resolved through further discussion and mutual consensus. The intercoder reliability, assessed using the percentage agreement approach, was 90% indicating acceptable reliability.⁴² Subsequently, NAK employed the coding manual to analyze the entire data. Additionally, a frequency count was conducted for each practice and belief identified.

RESULTS

Characteristics of community pharmacists interviewed

Out of the 30 CPs who were invited, 24 participated in the qualitative interview (Table 1). Five CPs refused to participate, and one CP cancelled the scheduled interview due to busyness. Data saturation was achieved after 21 interviews and was further confirmed by an additional three consecutive interviews, during which no new themes emerged. The participants consisted of 79.2% (19/24) females and had an age range of 25 to 50 years old. Slightly more than half of the CPs worked in independent pharmacies (58.3%, 14/24) and majority were situated in urban areas (75%, 18/24).

Provision of PTPC for prospective Hajj and Umrah pilgrims

In total, 23 out of 24 participants (95.8%) reported conducting at least one activity of PTPC for prospective Hajj and Umrah pilgrims. This study identified seven specific PTPC activities conducted by the CPs as detailed in Figure 1. The provision of travel health education emerged as the most frequently performed activity by the CPs. The majority of CPs have offered education to prospective Hajj and Umrah pilgrims on medication management, covering correct medication use and storage during pilgrimage travel, as well as advice on preventing travel-related illnesses and self-care practices. However, fewer CPs provided education on medical supplies and vaccination.

In this study, CPs reported receiving inquiries and requests from patients for health-related products suitable for their Hajj or Umrah pilgrimage travel needs. In response, the majority of CPs (83.3%, 20/24) have provided recommendations on various health-related products, including supplements (58.3%, 14/24), medications (54.2%, 13/24), medical supplies (37.5%, 9/24), personal care products (37.5%, 9/24), and travel medical kits (37.5%, 9/24). The CPs mentioned that they usually tailored their product recommendations based on specific patient and religious requirements, such as non-drowsy medicines and fragrance-free skin products.

Additionally, while most CPs (75%, 18/24) have dispensed non-prescription medicines for common travel-related illnesses and standby medications, some others (50%, 12/24) have also filled prescription medications such as oral contraceptive pills (OCPs) and chronic disease medications. Among the CPs, less than half of the CPs (41.7%, 10/24) reported conducting pretravel health assessments, which involved gathering patients' health and medication history, checking vaccination status, and assessing potential exposure to destination-specific health risks. Some



CPs (37.5%, 9/24) have made referrals to doctors upon recognizing health issues that required medical intervention beyond their scope of practice (such as potential exacerbation of chronic conditions or the need for vaccinations). A small number of CPs (12.5%, 3/24) offered basic health tests such

as blood pressure and blood glucose level checks. Additionally, two CPs (8.3%) offered verified medication lists upon request, providing accurate and comprehensive records of medications for prospective pilgrims, which are used for customs checking purposes.

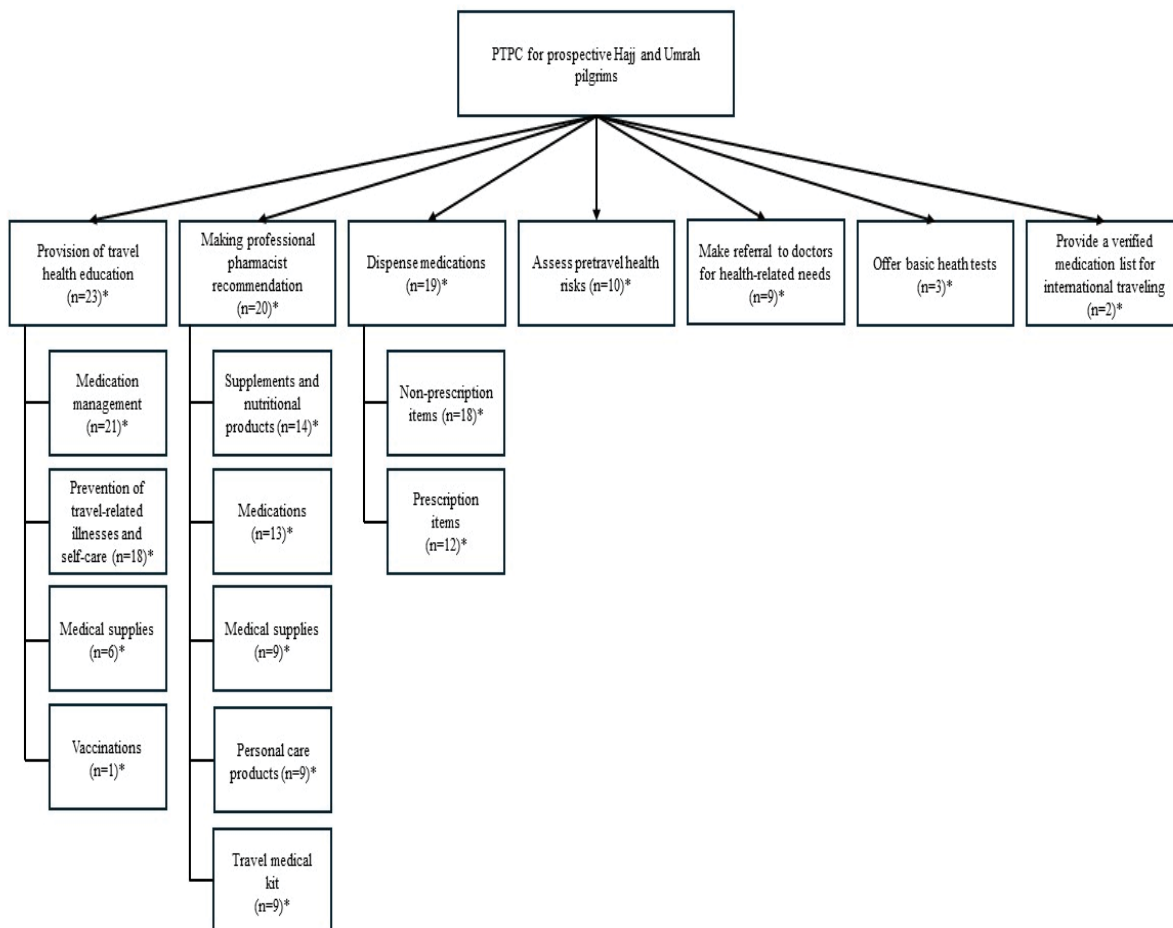


Figure 1. Reported activities relevant to pretravel pharmacist consultations for prospective Hajj and Umrah pilgrims as mentioned by the participants (* numbers of mentions)

Demographic characteristics of community pharmacists	Number of informants in each category (%)
Age	Less than 30 years: 9 (37.5)
	30-40 years: 11 (45.8)
	41-50 years: 4 (16.7)
	Mean (SD): 33.6 (7.2)
Sex	Female: 19 (79.2)
	Male: 5 (20.8)
Ethnicity	Malay: 17 (70.8)
	Chinese: 5 (20.8)
	Indian: 1 (4.2)
	Others: 1 (4.2)
Highest pharmacy qualification	Undergraduate: 22 (91.7)
	Postgraduate: 2 (8.3)



Years as a community pharmacist	Less than 5 years: 12 (50.0)
	5-10 years: 7 (29.2)
	11-15 years: 1 (4.2)
	16-20 years: 1 (4.2)
	Longer than 20 years: 3 (12.5)
	Mean (SD): 7.1 (7.0)
Type of pharmacy	Independent: 14 (58.3)
	Chain: 10 (41.7)
Location of pharmacy	Urban: 18 (75.0)
	Suburban: 6 (25.0)
Current job position	Owner: 2 (8.3)
	Part-owner: 2 (8.3)
	Employee: 20 (83.3)
Had training in travel medicine	Yes: 3 (12.5)
	No: 21 (87.5)

Beliefs regarding PTPC for prospective Hajj and Umrah pilgrims

Table 2 shows the CPs' beliefs regarding PTPC for prospective Hajj and Umrah pilgrims, mapped to the 14 TDF domains. The most frequently mentioned beliefs corresponded to the domains of knowledge, beliefs about capabilities, beliefs about consequences, environmental context and resources, social influences, and emotions, with all CPs stating them. Conversely, the least mentioned belief was related to the domain of reinforcement, involving only one CP (4.2%).

Knowledge

Overall, the provision of PTPC was recognized as a measure to prevent health issues or complications that prospective Hajj and Umrah pilgrims may encounter during their travel. CPs recognized PTPC as a complimentary consultation service, similar to other consultations, offered free of charge when needed by customers. Sixteen CPs (66.7%) were aware of various medical-related problems or health issues related to Hajj and Umrah pilgrimage but only a few (12.5%, 3/24) reported awareness of the cultural aspects of Hajj and Umrah pilgrimage. Furthermore, the majority of CPs (87.5%, 21/24) identified knowledge gaps regarding guidelines and recommendations related to Hajj and Umrah travel health while some (33.3%, 8/24) were not aware of the health-related issues relevant to Hajj and Umrah pilgrimage. In general, the experience CPs gained from providing day-to-day consultations to regular customers and patients have provided them with knowledge for them to offer PTPC for prospective pilgrims, regardless of their religious affiliations. However, some CPs believed that those serving predominantly Muslim communities, as well as Muslim CPs with personal experience in performing Hajj and Umrah, may be better equipped to provide the consultation due to their deeper knowledge, particularly in cultural aspects of the pilgrimage.

Skills

The CPs identified several crucial skills required to deliver

effective PTPC for prospective Hajj and Umrah pilgrims. While some CPs (33.3%, 8/24) recognized the significance of communication skills in providing the consultation and expressed confidence in their own abilities in this aspect, others stressed the importance of pharmaceutical care skills (25%, 6/24). Notably, there was a noticeable difference in the perceived pharmaceutical care skills among CPs, with those possessing extensive experience, and training in travel medicine considering themselves more adept. Opinions diverged on the necessity of specialized training to enhance pharmaceutical care skills related to travel health. Some CPs advocated for specific training encompassing medications, supplements, and pertinent medical supplies for prospective pilgrims, while others argued that general pharmaceutical care training sufficed. Moreover, a few CPs (12.5%, 3/24) underscored the significance of counseling skills and believed that CPs with personal experience in Hajj or Umrah are better equipped to provide comprehensive advice in this area.

Memory, attention, and decision processes

Most CPs (79.2%, 19/24) mentioned that PTPC for prospective Hajj and Umrah pilgrims is similar to other consultations in their pharmacy. They viewed these consultations as a usual practices that come naturally in their pharmacy work settings.

Behavioral regulation

Some CPs (41.7%, 10/24) stated that offering PTPC for prospective Hajj and Umrah pilgrims aligns with the overall vision and mission of their pharmacy, underscoring its relevance in their service provision. Moreover, one CP (4.2%) highlighted the presence of a formal feedback mechanism, including monitoring customer satisfaction, which consistently enables him to provide the consultation to this population.

Social/professional role and identity

Overall, most CPs (75%, 18/24) acknowledged their role in providing PTPC for prospective Hajj and Umrah pilgrims, viewing it as part of their professional responsibilities. However, the



Domains	Specific belief	Sample quote	Frequency of mentions
Knowledge	Lack of knowledge or awareness of Hajj and Umrah travel guidelines / recommendations	"I'm not aware of any specific guideline at the moment. There may be some, but I am not certain." (CP10, 34-year-old female)	21
		"I'm not aware of that. Perhaps I need more information such as recommendations or guidelines to refer to. I currently don't have any knowledge of available guidelines, so I'll need to search for them." (CP12, 34-year-old female)	
	Lack of knowledge of health-related issues relevant to Hajj and Umrah pilgrimage	"I'm confident when it comes to medication, but for anything else, I might not be as knowledgeable." (CP06, 27-year-old female)	8
		"Being non-Muslims, we are unfamiliar with what they might require. I am unsure if they need any particular advice." (CP24, 40-year-old female)	
	Having knowledge of health-related issues relevant to Hajj and Umrah pilgrimage	"They often inquire about the medicines they should bring, seeking a comprehensive list. Anticipating common health issues such as flu, fever, coughs, allergic reactions, or stomach upsets is crucial. Even if these ailments might not occur, it's important to inform them about the potential and provide detailed information on each medication, including dosage and frequency. Moreover, emphasizing the importance of supplements is also crucial." (CP10, 34-year-old female)	16
		"As pharmacists, it's crucial for us to be well-informed about vaccinations, including the different types available and their potential side effects. Equally important is reassuring people about the safety and effectiveness of vaccines in preventing infections." (CP20, 29-year-old female)	
	Having knowledge or awareness of Hajj and Umrah travel guidelines / recommendations	"Pharmacist must familiarize themselves with the yearly regulations, which can frequently change, whether from the local government or abroad." (CP15, 50-year-old female)	6
"I'm aware that there are guidelines. I remember seeing a module for Hajj and Umrah from the MOH (Ministry of Health)." (CP16, 33-year-old male)			
Having knowledge of cultural aspects of Hajj and Umrah pilgrimage	"We should have a good understanding of the Hajj journey, the environment, and the weather conditions during that period, as these can impact the health of pilgrims. It's crucial for pharmacists to be well-informed about these aspects." (CP05, 29-year-old female)	3	
Skills	Communication skills	"What I need, of course, are communication skills to simplify terms, making it easier for patients to understand." (CP03, 31-year-old female)	8
		"In the context of travel health, effective communication skills are crucial. Considering that Hajj and Umrah pilgrims are predominantly elderly, our approach needs to be tailored differently compared to how we would communicate with teenagers or the general population." (CP17, 32-year-old male)	
	Pharmaceutical care skills	"We inquire about patients' medical histories to tailor our recommendations on medicines, supplements, devices, and diet requirements." (CP16, 33-year-old male)	6
"We have clinical skills and an understanding of a patient's medical history, along with expertise in medication therapy. This includes knowledge of safely combining medications, such as pairing cough medicine with fever reducers or using cooling methods to lower body temperature. This comprehensive care can enhance the patient's overall condition." (CP04, 29-year-old female)			
Counselling skills	"Counselling skills are essential to prepare patients for their trip. This is particularly important for the elderly, who may feel nervous and excited. As my friend mentioned, certain rituals can be very strenuous, and the paths may be rocky. Our role is to comfort them and instil confidence." (CP22, 45-year-old male)	3	
Memory, attention and decisions	PTPC for prospective Hajj and Umrah pilgrims is integrated in usual practice	"Our approach to these customers is the same as for others. When it comes to Hajj and Umrah, we specifically focus on their unique health requirements." (CP16, 33-year-old male)	19
		"I provide consultations based on individual needs. There isn't a specific standard operating procedure that we follow here for prospective Hajj and Umrah pilgrims." (CP01, 30-year-old female)	



Behavioural regulation	PTPC for prospective Hajj and Umrah pilgrims is supported by vision and mission of company	"Our vision and mission always serve as our motivators. Our community pharmacy has a clear vision and mission. They are our guiding principles, representing our hope for growth and serving as our main drive, always aiming for customer satisfaction." (CP01, 30-year-old female)	10
		"Yes, it's our mission to make a positive impact on the quality of life of our customers. This is a broad statement, but when we break it down, providing this service is one way we can contribute to this larger goal. Ultimately, we aim to enhance their well-being during their trip." (CP22, 45-year-old male)	
	Customer feedback system	"Our commitment is to deliver the best service possible to our customers. Adhering to customer satisfaction as our quality policy guides our consultation." (CP17, 32-year-old male)	1
Social/professional role and identity	Pharmacist's professional role	"I believe it is my responsibility as a pharmacist to educate our customers. They come to us seeking knowledge, and it's our duty to provide it, ensuring they have a smooth and informed journey during Umrah and Hajj." (CP20, 29-year-old female)	18
		"I see my role as providing consultations to ensure they take the right medications, thus helping them maintain their health while they are there." (CP06, 27-year-old female)	
	Pharmacists' social responsibility	"I believe this is very important in this multiracial country." (CP24, 40-year-old female)	5
		"Because some of our customers are regulars, they're like family to us. It's important to guide them on what to bring and what to expect, especially if they haven't traveled before." (CP13, 29-year-old female)	
Beliefs about capabilities	Limited confidence in providing PTPC for prospective Hajj and Umrah pilgrims regarding regulations	"Whether certain medicines can be brought on a flight, I'm not entirely sure which ones are allowed, and which are not." (CP08, 32-year-old female)	12
		"I'm concerned that I might give advice that doesn't comply with the regulations. Regulations vary between countries, such as here and there. For example, during COVID and the recent Hajj, they still needed to wear masks, but now it's no longer required. We're uncertain about the regulations, especially since regulations keep changing." (CP15, 50-year-old female)	
	Belief that PTPC for prospective Hajj and Umrah pilgrims is not easy to provide	"It's not easy, I'd say it's moderate because we have to cater to individual needs. So, at times, it can be challenging because people have different concerns." (CP22, 45-year-old male)	6
	Limited confidence in providing PTPC for prospective Hajj and Umrah pilgrims regarding management of disease	"Regarding diseases, I would consider my knowledge to be moderate. If someone discloses having specific conditions, I must conduct research and compile relevant information before offering advice." (CP07, 27-year-old female)	4
	Having confidence in providing PTPC for prospective Hajj and Umrah pilgrims on medicine-related matters	"When it comes to medications, I would say I am confident." (CP07, 27-year-old female)	12
"If they ask about medication, I'm very confident. Issues like diarrhea, cold, fever, and supplements. It's something I deal with on a daily basis." (CP01, 30-year-old female)			
Optimism	Being optimist with PTPC for prospective Hajj and Umrah pilgrims	"People need this service annually, creating a recurring demand each year. Pharmacists are required to fulfil this need." (CP14, 48-year-old female)	16
		"Yes, there is a prospect because they can get in-depth information regarding medication at the community pharmacy. Clinics and hospitals, as well as doctors, often lack the time to provide detailed explanations." (CP02, 31-year-old female)	
Reinforcement	Incentives or rewards	"Receiving recognition for our counselling service from an authority or any organization would be good. I also believe that financial support would be even more advantageous. For instance, offering the service and then receiving an allowance from Tabung Haji for patient counselling would be great." (CP22, 45-year-old male)	1

Beliefs about consequences	Belief that PTPC for prospective Hajj and Umrah pilgrims can ensure pilgrims' well-being	"In my opinion, we provide customers with comprehensive medication to meet their needs. Some customers find it challenging to obtain medication from Makkah, possibly due to pricing. Additionally, since they are going there to perform Hajj or Umrah, they need to concentrate on their <i>ibadah</i> (worship). Therefore, it's crucial to fulfill their health needs in advance in case they fall ill. Apart from providing them with the necessary medication, we also address any health-related inquiries. That is my point of view." (CP01, 30-year-old female)	20
		"By being better prepared, pilgrims can experience a smoother journey with fewer issues, less stress, and more enjoyment. This preparation helps them meet their religious obligations." (CP24, 40-year-old female)	
	Belief that PTPC for prospective Hajj and Umrah pilgrims can lead to increased sales	"The benefit for us is in boosting our sales to some extent." (CP22, 45-year-old male)	17
		"From a pharmacy and business perspective, we can certainly generate more sales." (CP03, 31-year-old female)	
	Belief that PTPC for prospective Hajj and Umrah pilgrims can enhance customers' trust and loyalty	"I love educating people and love it when customers come back. It helps me gain their trust and build rapport." (CP02, 31-year-old female)	5
		"As a community pharmacist, gaining the trust of the customer is essential. Once you have their trust, they are more likely to come back to you." (CP07, 27-year-old female)	
	Belief that PTPC for prospective Hajj and Umrah pilgrims can lead to patients/customers' cost-savings	"It's expensive over there (referring to medications), so this can help reduce their costs." (CP14, 48-year-old female)	2
	Belief that PTPC for prospective Hajj and Umrah pilgrims, if not provided, reduces pharmacists' reputations	"It can affect my credibility. It gives the impression that we lack the necessary skills when customers seek consultation, but we're unable to provide it." (CP08, 32-year-old female)	10
	Belief that PTPC for prospective Hajj and Umrah pilgrims, if not provided, causes a loss of customers' trust	"Patients will lose trust in the pharmacy. For us, this represents a significant loss." (CP15, 50-year-old female)	9
"The most common consequence of not providing (referring to PTPC for prospective Hajj and Umrah pilgrims) is the loss of the customer." (CP01, 30-year-old female)			
Belief that PTPC for prospective Hajj and Umrah pilgrims, if not provided does not cause any disadvantages	"Because if we didn't provide it, there's always people over there who can take care of them, especially during Hajj." (CP16, 33-year-old male)	4	
Belief that PTPC for prospective Hajj and Umrah pilgrims, if not provided, impairs patients' well-being	"I believe that delaying treatment can significantly impair patients' safety and health. Late treatment can escalate into a cascade of health issues; for instance, untreated gastric problems can progress to bloating and, if prolonged, lead to dehydration. Therefore, timely provision of medication is crucial. There is a risk associated with not offering consultation, as it can result in the patient's condition worsening." (CP03, 31-year-old female)	2	
Intentions	Willing to provide PTPC for prospective Hajj and Umrah pilgrims in the future	"Yes, because I wouldn't want the patient or customer to leave here without getting what they need. It's important to fulfill their needs. It's also satisfying for me." (CP09, 31-year-old male)	24
		"Yes, I look at these elderly customers as if they were my own parents. I find satisfaction in helping them." (CP13, 29-year-old female)	
Goals	PTPC for prospective Hajj and Umrah pilgrims is provided with the aim to well-equip patients with relevant knowledge	"My goal is driven by the desire for customers to fully understand and acquire the necessary knowledge, which they can then apply during their travels. It's important to me that they comprehend the information and use it effectively." (CP13, 29-year-old female)	16
	PTPC for prospective Hajj and Umrah pilgrims is provided with the aim to improve their well-being	"Our main goal is the well-being of our customers. When they set out on a journey far from home, our aim is to ensure a smooth pilgrimage for them." (CP01, 30-year-old female)	7
"I want to assist customers and ensure that they can complete their worship without falling sick." (CP18, 25-year-old male)			

	PTPC for prospective Hajj and Umrah pilgrims is provided with the aim to equip them with medications or products	"Many people don't realize the importance of bringing basic medications with them. In case of an emergency, having medications in their possession can be a convenience. This helps avoid the need to locate a pharmacy in an unfamiliar place, which can be challenging and stressful. Not knowing the local setup can make finding help difficult, so having immediate access to their medications is a more convenient solution." (CP09, 31-year-old male)	6
		"To ease their journey and make their minds at ease by having backup medicines for common issues like diarrhea or headaches. This can smooth their experience during the trip." (CP20, 29-year-old female)	
	PTPC for prospective Hajj and Umrah pilgrims is provided with the aim to enhance customer satisfaction and trust	"Our goal is to achieve exceptional customer satisfaction and building long-term loyalty. This is important for sustaining our business successfully over the long term." (CP22, 45-year-old male)	3
Emotion	Feeling happy	"It's fulfilling to raise awareness and provide valuable knowledge, including offering advice on necessary preparations. It brings me a great sense of satisfaction." (CP20, 29-year-old female)	17
		"We share knowledge to offer guidance and find it rewarding. Helping people brings us happiness." (CP02, 31-year-old female)	
	Feeling satisfied	"I feel satisfied knowing that people are gaining valuable knowledge." (CP03, 31-year-old female)	17
		"As a pharmacist, we find satisfaction." (CP16, 33-year-old male)	
	Stress and tiredness	"I remember feeling exhausted while assisting a queue of Umrah customers, all facing similar menstrual issues." (CP02, 31-year-old female)	3
		"Dealing with customers who are unaware, particularly the elderly and first-time Hajj travelers, can be quite exhausting." (CP18, 25-year-old male)	
Social influences	Having support from the public/patients/customers	"The public will support us because the community pharmacy is easily accessible. People can simply walk in and see a pharmacist at their convenience. In contrast, clinics or hospitals often have long wait times and require appointments to see a doctor." (CP23, 30-year-old female)	23
		"Yes, because we don't charge, it's free of charge. They will come." (CP10, 34-year-old female)	
	Having support from national professional organizations	"They will support us. Firstly, to empower the role of community pharmacies within the community, raising awareness that pharmacies offer more than just medication." (CP05, 29-year-old female)	23
		"Yes, the Malaysian Pharmacists Society represents the pharmacy profession. They will support anything that brings benefits to the pharmacy." (CP11, 49-year-old female)	
	Having support from other community pharmacists	"Yes, even non-Muslims will support it because there's not much difference between pre-travel consultations for Hajj, Umrah, and regular travel. If they provide pre-travel consultations for regular travel, it means they can also provide them for Hajj and Umrah because the differences are minimal." (CP08, 32-year-old female)	20
		"I believe they will support it because it can be an opportunity to enhance the services offered at their pharmacy." (CP05, 29-year-old female)	
	Having support from travel agencies	"The travel agency will support it. Previously, I received an invitation to provide basic consultations to their customers." (CP03, 31-year-old female)	19
		"Yes, I believe travel agents will support because it will make their job easier." (CP15, 50-year-old female)	
	Having support from doctors	"I believe they will support us. They will advise the customer to come to us." (CP12, 34-year-old female)	17
		"I believe the doctors would support this. I don't think they have the time to do it. Normally, customers are laymen. One question could trigger two or three more questions. Doctors don't have time for that." (CP15, 50-year-old female)	

	Having support from other healthcare professionals (e.g., nutritionists, nurses)	"They are likely to support. In fact, we can seek their cooperation." (CP04, 29-year-old female)	16
		"I believe they will support unless they have conflicting business interests, but from my perspective, I haven't seen any conflicts." (CP05, 29-year-old female)	
	Lack of support from doctors	"I don't think the doctor will support it. The doctors will likely suggest going to see a doctor." (CP16, 33-year-old male)	6
		"We rarely receive referrals or collaborations from doctors." (CP02, 31-year-old female)	
	Having support from the company	"Yes, I believe they will support us because our customers are mostly Muslim. If we have a demand, they can support it." (CP20, 29-year-old female)	5
		"I believe they will support it because it can be a good opportunity for the company." (CP05, 29-year-old female)	
Environmental context and resources	<i>Barriers</i>		
	Staff shortage	"Having two pharmacists makes it easier, whereas it is more challenging when working alone due to staff shortage" (CP07, 27-year-old female)	10
		"It's difficult when we work alone... not enough staff. So, when we have a lot of customers, we can only provide simple consultations." (CP17, 32-year-old male)	
	Lack of time	"The barriers are time and staffing. If we have enough staff, there is no issue. However, if we are short-staffed, it may take longer and interrupt other services. Providing pre-travel consultations can be time-consuming. To expedite the process, we might have to shorten the consultation, but this could lead to the customer not fully understanding." (CP08, 32-year-old female)	9
	High workload	"The patient transaction per day is quite high, so our time is limited. Instead of taking 15 to 20 minutes, we need to shorten the consultation as much as possible and provide concise information to the patient. That is the limitation." (CP03, 31-year-old female)	9
	Limited availability of the products	"One more barrier is that sometimes patients demand certain types of medications that are really hard to obtain, especially those that require cold chain handling or have a longer delivery time, like some medications that take one week to be delivered. That aspect takes time." (CP03, 31-year-old female)	9
	Non-Muslim populated areas	"Depends on the location. Areas like Bangi may have more Muslim customers, while here, we only have a few Muslim customers. I might encounter six to seven Muslim customers per year." (CP24, 40-year-old female)	4
	<i>Facilitators</i>		
	Customer demand	"Based on the patient's questions and demands, which are usually quite specific when they come here. For instance, they might ask, 'I'm going to travel, I'm going to Hajj, what medications do I need to take?' These are common questions. So, I cover the basics". (CP03, 31-year-old female)	21
	Availability of training and education	"If I was given training, I know more, I know what to cover in pre-travel consultation." (CP17, 32-year-old male).	18
	Availability of pharmacist resources	"If there are any updates from Saudi Arabia, I usually inquire with the travel agency first since they typically receive information beforehand. For example, they might be informed about the latest requirements for rapid test kits. When customers inquire about these updates, I immediately contact the travel agency for the most recent information. Some customers ask about whether a swab test is required or not, and I provide them with the latest updates from Saudi Arabia." (CP02, 31-year-old female)	13
		"We recently attended a vaccination course where we were introduced to websites to obtain information about vaccinations, such as the CDC (Centers for Disease Control and Prevention), which we can refer to". (CP24, 40-year-old female)	
	Adequate staff	"We have two pharmacists here, so it's easier. Usually, it's harder when you're alone." (CP07, 27-year-old female)	11

	Muslim populated areas	"In our area with a large Malay population, we frequently serve customers preparing for Hajj and Umrah. During the Hajj season, we typically assist around 30 to 50 customers per month, and for Umrah, which occurs year-round, we attend to about 20 to 30 customers monthly." (CP03, 31-year-old female)	8
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CPs mentioned that their responsibilities were confined within the scope of their practice. Some CPs (20.8%, 5/24) viewed the provision of PTPC as part of their social responsibility and interpreted this service to better serve their diverse cultural communities.

Beliefs about capabilities

Half of the CPs (50%, 12/24) demonstrated confidence in delivering PTPC for prospective Hajj and Umrah pilgrims, particularly in medication-related topics, citing their knowledge, experience, and expertise in this domain. Conversely, many CPs voiced challenges and a lack of confidence, specifically in areas such as regulations for traveling with medications (50%, 12/24) and a few lacked confidence in the management of diseases (16.7%, 4/24).

Optimism

Most CPs (66.7%, 16/24) were generally optimistic about their roles in providing PTPC for prospective Hajj and Umrah pilgrims. This optimism stemmed from the annual occurrence of Hajj and Umrah, leading to frequent encounters with customers planning these trips. They also expressed positivity about the potential expansion of professional pharmacy services, collaboration with external agencies, and the enhancement of their responsibilities.

Beliefs about consequences

Overall, CPs expressed positive beliefs about the benefits of PTPC for prospective Hajj and Umrah pilgrims, viewing it as advantageous not only for the travelers but also for themselves and their community pharmacies. The majority of CPs (83.3%, 20/24) associated the provision of PTPC with the potential to enhance the well-being of the pilgrims, consequently improving patient convenience and allowing them to better focus on their worship activities. Many CPs (70.8%, 17/24) also believed that providing PTPC for prospective Hajj and Umrah pilgrims can lead to increased sales. Additionally, almost half of the CPs (41.7%, 10/24) expressed concerns that not providing PTPC could result in a loss of customers' trust and impact the pharmacy business.

Intentions

All CPs (100%) expressed their willingness to provide PTPC for prospective Hajj and Umrah pilgrims, citing their professional obligation to provide the service as the main motivating factor.

Goals

The majority of CPs (66.7%, 16/24) believed that the goals of PTPC for prospective Hajj and Umrah pilgrims are to provide them with relevant knowledge, with some (21.2%, 7/24) emphasizing its aim to improve the well-being of the pilgrims. A minority of CPs believed that the goals of PTPC for

prospective Hajj and Umrah pilgrims are to equip the pilgrims with necessary medications or products (25%, 6/24), and to enhance customer satisfaction, and foster trust to promote the growth of their business (12.5%, 3/24).

Reinforcement

One CP (4.2%) mentioned that providing incentives and rewards for offering PTPC to prospective Hajj and Umrah pilgrims could motivate CPs to provide the service. According to the CP, these incentives and rewards could take the form of financial benefits and professional recognition by the authorities.

Emotion

The majority of CPs expressed positive emotions when providing pretravel consultations to Hajj and Umrah pilgrims, including feelings of satisfaction (70.8%, 17/24) and happiness (70.8%, 17/24). However, a minority of them perceived negative feelings such as stress and tiredness (12.5%, 3/24) could adversely affect their motivation, particularly when dealing with heavy workloads that could demotivate them from offering subsequent consultations.

Social influences

Almost all CPs (95.8%, 23/24) believed that patients, the public, and the national professional organization, such as the Malaysian Pharmacists Society, would support their provision of PTPC for prospective Hajj and Umrah pilgrims. A significant majority of CPs also felt that entities such as other community pharmacies (83.3%, 20/24), travel agencies (79.2%, 19/24), doctors (70.8%, 17/24), and other healthcare professionals (66.7%, 16/24), including nurses and nutritionists, would be supportive of PTPC for these pilgrims. However, some CPs (25%, 6/24) expressed concerns that doctors might not support their provision of PTPC. Additionally, only a few CPs (20.8%, 5/24) felt encouraged by their employers or companies. It was also noted that distinct support systems and operational dynamics exist between CPs in chain and independent pharmacies, impacting their ability to provide PTPC for prospective Hajj and Umrah pilgrims. Chain pharmacies often require permission for such practices but can offer a structured support system. Meanwhile, independent pharmacies benefit from self-motivation, flexibility, and more personalized services without the need for permission from higher authorities.

Environmental context and resources

CPs have identified various environmental factors that can either facilitate or impede the provision of PTPC for prospective Hajj and Umrah pilgrims. The main barrier reported was the shortage of staff (41.7%, 10/24) and lack of time (37.5%, 9/24) to provide the consultation. This is mainly due to the fact that most of them work alone in their community pharmacies,



making it challenging to manage consultations alongside their other responsibilities. Additionally, some CPs (37.5%, 9/24) cited the heavy daily workload as a barrier, as it limits the time available to dedicate to the provision of consultation and potentially compromises the quality of the service.

Various environmental contexts and resources were perceived as facilitators for CPs in providing PTPC for prospective Hajj and Umrah pilgrims. The main facilitator mentioned by the pharmacists was customers' demand for the consultation (87.5%, 21/24). Additionally, the majority (75%, 18/24) believed a training program in travel health may enable them to offer the consultation effectively. Additionally, many CPs (54.2%, 13/24) highlighted that the availability of resources and guidelines tailored to the unique needs of Hajj and Umrah pilgrims can facilitate their provision of PTPC. The CPs mentioned utilizing information from diverse sources, including travel agencies, airline websites, the World Health Organization (WHO), the Centers for Disease Control and Prevention (CDC), the Tabung Haji (the Malaysian hajj pilgrims fund board) website, the Ministry of Health of Malaysia platforms, and pharmacy-related websites. Furthermore, for some CPs (33.3%, 8/24), the location of their pharmacies in Muslim-populated areas and areas with a high proportion of elderly individuals also increased their involvement in providing PTPC for prospective pilgrims.

DISCUSSION

This study showed that CPs have engaged in various PTPC activities tailored to the needs of prospective Hajj and Umrah pilgrims, with the most common activity being the provision of health education, and recommendations of health and self-care products and preventive medications. The provision of PTPC to pharmacy clients, including prospective Hajj and Umrah pilgrims, has been reported to face barriers such as knowledge gaps in travel health and limited training in two previous Malaysian studies.^{21,23} This study contributes to the existing body of knowledge by revealing that the provision of PTPC for prospective Hajj and Umrah pilgrims is influenced not only by training and knowledge but also by various factors, including physical and social opportunities, as well as physical and psychological capabilities. These findings shed light on the multifaceted nature of factors affecting the delivery of PTPC to prospective pilgrims, indicating the need for a holistic approach to address the complexities involved in providing effective pre-travel care. To the best of our knowledge, this study is the first to employ a theoretical approach to explore the topic. The utilization of the TDF has facilitated a comprehensive exploration of the factors influencing the practice of providing PTPC for these prospective pilgrims.

The present study suggests a substantial opportunity for CPs to take a more proactive role in providing PTPC for prospective Hajj and Umrah pilgrims. As emerged from the study, there is an apparent demand from prospective pilgrims for PTPC at community pharmacies, and CPs are well-equipped to meet this need due to their accessibility. Additionally, PTPC is viewed as a professional obligation for pharmacists, aligning with their expanding role in public health and preventive care.^{43,44}

Moreover, CPs demonstrate an optimism and willingness to actively engage in promoting the health and safety of individuals undertaking these religious journeys.

The diverse skill set possessed by CPs, which includes communication and counseling skills, along with a wealth of pharmaceutical care knowledge concerning medication-related needs, positions them as invaluable resources for prospective pilgrims seeking pre-travel health advice, especially given the intricate health-related considerations associated with Hajj and Umrah. Additionally, PTPC was perceived by CPs as beneficial that extends beyond improving the well-being of Hajj and Umrah pilgrims to encompass the growth and sustainability of community pharmacies, as well as enhancing the reputation of CPs. Therefore, it is imperative to encourage initiatives that promote and support PTPC for prospective Hajj and Umrah pilgrims and maximize the potential benefits for both pilgrims and community pharmacy establishments.

Nevertheless, for CPs to effectively offer PTPC to the pilgrims, this study's findings suggest that it is crucial that they possess comprehensive knowledge on specific topics such as common diseases encountered by pilgrims, vaccination requirements, pilgrimage activities, and travel regulations. The present study revealed a significant lack of training in travel health among CPs, with only four CPs (16.7%) having received such training, highlighting the need for more training programs to address this gap. Furthermore, the frequent encounters with potential pilgrims at the pharmacy requesting advice and medicinal products would mean that the CPs need to be equipped with the necessary knowledge to support them. This training can also be beneficial for CPs who are not familiar with Hajj and Umrah pilgrimages and the health-related needs of the pilgrims, including non-Muslims and younger CPs.

Therefore, it is recommended that relevant stakeholders collaborate to develop tailored training programs for CPs, focusing on the identified knowledge gaps, to better support the health and well-being of prospective Hajj and Umrah pilgrims. Developing such training programs in partnership with travel health experts, academic institutions, and professional associations can enrich the training by providing access to up-to-date resources, practical insights, and networking opportunities.

In addition to this, CPs can be supported in providing PTPC for prospective Hajj and Umrah pilgrims by providing them with reliable resources. These resources can integrate recommendations and current information from reputable sources such as the WHO,⁶ CDC,⁴⁵ Tabung Haji and the Ministry of Health of Malaysia.⁴⁶ The availability of such resources is particularly important due to the dynamic nature of Hajj and Umrah travel regulations and requirements set forth by the Saudi and Malaysian authorities, which often necessitate frequent updates.^{47,48} Given that Umrah occurs throughout the year and Hajj takes place annually, CPs can always refer to these resources to ensure they are providing the most up-to-date and accurate information to prospective pilgrims.

The present study has also highlighted the opportunity for



collaboration with other stakeholders, particularly the doctors, the Malaysian Pharmacists Society, and travel agencies. In this study, it was revealed that some CPs recognize that their provision of PTPC for prospective Hajj and Umrah pilgrims are confined to their scope of practice, acknowledging that activities such as vaccination services fall under the purview of medical practitioners. However, CPs mentioned that they can identify health issues requiring medical intervention beyond their scope, such as potential exacerbation of chronic conditions or the need for vaccinations, leading to referrals to doctors. This underscores the potential for collaboration with doctors to enhance the well-being of prospective Hajj and Umrah pilgrims.

It was noted that some CPs expressed a lack of support from doctors in enabling them to provide PTPC for these pilgrims, which may stem from the differences in understanding of roles and responsibilities, limited communication, and a lack of awareness among doctors regarding the potential contributions of CPs.⁴⁹ Addressing this issue may require enhancing inter-professional communication and collaboration,⁵⁰ such as through regular meetings, workshops, or joint training sessions to foster mutual understanding and support between CPs and doctors.

Furthermore, the Malaysian Pharmacists Society and travel agencies can assist in narrowing this gap by advocating for the roles of CPs in promoting the well-being of Hajj and Umrah pilgrims through educational campaigns, policy advocacy, professional training, and information dissemination, thereby elevating the recognition and support for CPs in providing PTPC for pilgrims and fostering a more collaborative and integrated approach to pilgrim care. Furthermore, the recognition from doctors, the Malaysian Pharmacists Society, and travel agencies of CPs' roles in providing PTPC for prospective Hajj and Umrah pilgrims can serve as a "reward" for CPs to offer these services.

Interestingly, the present study reveals an inadequate encouragement from CPs' employers or companies for them to provide PTPC to Hajj and Umrah pilgrims, possibly due to reasons such as a lack of awareness, resource allocation priorities, and time and workload pressures. To address this, efforts can be made to educate employers about the benefits of these consultations and develop clear policies emphasizing the importance of PTPC, creating a more supportive environment and encouraging CPs to actively engage in providing this valuable service.

Strength and limitations of the study

The strength of the study is it is the first study conducted on the activities and beliefs of PTPC for prospective Hajj and Umrah pilgrims. The application of TDF provides insight from the theoretical lens of the topic. The study has several limitations. Firstly, it only included a small number of CPs from a capital city and a state in Malaysia. It is acknowledged that CPs' practices and perceptions of facilitators and barriers to the provision of PTPC for prospective Hajj and Umrah pilgrims in different regions of the country might vary. Furthermore, the CPs primarily from urban and suburban areas may not fully represent the practices and perceptions of those located in rural community pharmacy settings. Moreover, all the majority participants in the study

worked in community pharmacy settings, which may not entirely capture the specific challenges faced by pharmacists in other settings such as airport pharmacies who are renowned for their unique travel health services.²² Additionally, the study's findings indicating the generally positive attitude of CPs towards the provision of PTPC for prospective Hajj and Umrah pilgrims could be influenced by social desirability bias. It is noteworthy, however, that some CPs admitted to not providing certain PTPC activities, suggesting a reduction in such bias, mainly due to the offer of confidentiality and anonymity in the study. Efforts were also made to minimize social desirability bias by having the interviewer pose as a researcher rather than a healthcare provider.

Future studies should aim to include a more diverse sample of CPs from various regions, including rural areas, and different pharmacy settings, such as airport pharmacies, to gain a comprehensive understanding of the facilitators and barriers to the provision of PTPC for prospective Hajj and Umrah pilgrims. Exploring the perspectives of key stakeholders including prospective pilgrims, doctors, national pharmacists' organizations, and travel agencies can provide valuable insights for improvement. Furthermore, a future quantitative study using a structured questionnaire should be considered to assess the factors significantly associated with the provision of PTPC for prospective Hajj and Umrah pilgrims.

CONCLUSION

This study underscores the important role CPs can play in proactively delivering PTPC for prospective Hajj and Umrah pilgrims. The findings suggest that CPs are well-positioned to fulfill the growing need for PTPC, owing to their accessibility, sense of professional responsibility, and commitment to safeguarding the health of pilgrims. Despite this, several challenges were identified, including staff shortages, time constraints, limited confidence in addressing regulatory requirements and disease management, and a perceived lack of support from physicians. The study further suggests that enhancing PTPC services for these pilgrims can be achieved through targeted education and training, improved access to resources, strengthened interprofessional collaboration, and the implementation of supportive policies.

AUTHORS' CONTRIBUTION

NAK: conceptualization, data curation, formal analysis, investigation, methodology, roles/writing-original draft, writing-review and editing; MSAW: conceptualization, funding acquisition, methodology, supervision, validation, writing-review and editing; AMS: supervision, writing-review and editing; NO: supervision, writing-review and editing. All authors have critically reviewed and approved the final draft of the study and agreed to be accountable for all aspects of the work.

CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest.



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Supplementary file 1:			
Table 1. The Consolidated Criteria for Reporting Qualitative Studies (COREQ): 32-item checklist			
Domain	Guide questions/description	Remarks	Section / subsection
Domain 1: Research team and reflexivity			
<i>a) Personal characteristics</i>			
1. Interviewer / facilitator	Which author/s conducted the interview or focus group?	NAK conducted all 24 interviews.	Methods / data collection
2. Credentials	What were the researcher's credentials? E.g., PhD, MD	NAK had a Master of Social and Administrative Pharmacy degree and was a PhD candidate at the time of the study.	Author details / Methods / data collection
3. Occupation	What was their occupation at the time of the study?	NAK is a PhD research student and registered pharmacist working in the Ministry of Health Malaysia on a full-time basis.	Author details / Methods / data collection
4. Gender	Was the researcher male or female?	Female.	Methods / data collection
5. Experience and training	What experience or training did the researcher have?	NAK had attended training in qualitative research methodologies and NVivo software training.	Methods / data collection
<i>b) Relationship with participants</i>			
6. Relationship established	Was a relationship established prior to study commencement?	Pharmacists were contacted via email, face-to-face and messaging platforms before participation to discuss participating in the study. Some participants were known to the researcher through professional pharmacy networks/contacts.	Methods / Sampling of study informants
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g., personal goals, reasons for doing the research	Participants were aware that the researcher was a PhD student at the Faculty of Pharmacy, UiTM. Participants were aware that the research was ethically approved and funded by UiTM.	Discussion / Limitations of study
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g., Bias, assumptions, reasons and interests in the research topic	To minimize social desirability bias, the interviewer poses as a researcher / PhD student rather than a healthcare provider.	Methods / data collection
Domain 2: study design			
<i>a) Theoretical framework</i>			
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g., grounded theory, discourse analysis, ethnography, phenomenology, content analysis	The qualitative study utilized a phenomenological approach. The research questions, interview topic guide and data analysis were guided by the Theoretical Domains Framework.	Methods / study design
<i>b) Participant selection</i>			
10. Sampling	How were participants selected? e.g., purposive, convenience, consecutive, snowball	Purposive and snowball sampling strategies were employed to identify pharmacists' demographic variations such as age, gender, years of experience and different types of community pharmacies e.g., independents and chains.	Methods / sampling of study informants
11. Method of approach	How were participants approached? e.g., face-to-face, telephone, mail, email	Participants were initially contacted via telephone, email, or face-to-face. If they expressed interest at this stage, they were emailed or sent via the messaging platform a letter of invitation, participant information sheet, and consent form.	Methods / sampling of study informants
12. Sample size	How many participants were in the study?	24 participants took part in the study.	Results / Characteristics of community pharmacists interviewed

13. Non-participation	How many people refused to participate or dropped out? Reasons?	Five participants refused to participate, and one pharmacist cancelled a scheduled interview due to busyness.	Results / Characteristics of community pharmacists interviewed
<i>c) Setting</i>			
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	Data were collected at the participant's place of work e.g., consultation room and meeting room	Methods / data collection
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	No others were present at the time of each interview.	Non-applicable
16. Description of sample	What are the important characteristics of the sample? E.g., demographic data, date	Information about the participant's demographic and professional background e.g., age, gender, years of experience in community pharmacy, job title and training in travel medicine was collected.	Results / Characteristics of community pharmacists interviewed / Table 1
<i>d) Data collection</i>			
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	An interview topic guide with prompts guided the interview sessions. The topic guide was piloted before use with five pharmacists who were practising in the community pharmacy setting.	Methods / Study instrument / Supplementary file 3
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	No repeat interviews were required.	Methods / data collection
19. Audio / visual recording	Did the research use audio or visual recording to collect the data?	All interviews were audio-recorded.	Methods / data collection
20. Field notes	Were field notes made during and/or after the interview or focus group?	The field notes were made by NAK during and/or after the interviews. These field notes aided in the analysis of the transcribed audio files.	Methods / data collection
21. Duration	What was the duration of the interviews or focus group?	Interviews ranged in duration from 25 to 93 minutes (total duration 1146 minutes).	Methods / data collection
22. Data saturation	Was data saturation discussed?	Data saturation was reached after twenty-four informants were interviewed, with no new themes or codes emerged from the last three interviews, indicating theoretical saturation had been achieved.	Results / Characteristics of community pharmacists interviewed
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	Transcripts were returned to informants for comment or correction.	Methods / data analysis
Domain 3: analysis and findings			
<i>a) Data analysis</i>			
24. Number of data coders	How many data coders coded the data?	Initially, two researchers (NAK and MSAW) independently coded and analyzed six interview transcripts (25%, 6/24). Discrepancies in the findings were resolved through further discussion and mutual consensus. The intercoder reliability, assessed using the percentage agreement approach, was 90% indicating acceptable reliability. Subsequently, NAK employed the coding manual to analyze the entire data. Additionally, a frequency count was conducted for each practice and belief identified.	Methods / data analysis
25. Description of the coding tree	Did authors provide a description of the coding tree?	Codes represented specific beliefs, barriers and facilitators expressed by informants were assigned to each domain of the TDF.	Supplementary file 2

26. Derivation of themes	Were themes identified in advance or derived from the data?	The practices of community pharmacists in providing pretravel pharmacist consultations for prospective Hajj and Umrah pilgrims were identified and categorized using inductive qualitative data analysis, while their beliefs regarding pretravel pharmacist consultations were identified and categorized using deductive qualitative data analysis guided by the Theoretical Domains Framework.	Methods / data analysis
27. Software	What software, if applicable, was used to manage the data?	NVivo™ version 12 (QSR International Pty Ltd)	Methods / data analysis
28. Participant checking	Did participants provide feedback on the findings?	Participants did not provide feedback on the findings.	Non-applicable
<i>b) Reporting</i>			
29. Quotations presented	Were participant quotations presented to illustrate the themes/ findings? Was each quotation identified? e.g., participant number	Quotations have been presented with identifiers removed. Each participant was given an anonymous code e.g., CP01.	Table 2
30. Data and findings consistent	Was there consistency between the data presented and the findings?	The study findings were reported clearly and consistently to accurately reflect the collected data.	Results
31. Clarity of major themes	Were major themes clearly presented in the findings?	Yes.	Results
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Yes.	Results

Supplementary file 2:

Table 2. Definition of the pre-travel pharmacist consultations (PTPC) for prospective Hajj and Umrah pilgrims and the fourteen domains of the Theoretical Domains Framework (TDF)

Domain (definition)	Definition in the context of this study
Pre-travel pharmacist consultations for prospective Hajj and Umrah pilgrims	Pretravel consultative activities conducted by community pharmacists for clients who preparing for Hajj and Umrah pilgrimages
D1. Knowledge (An awareness of the existence of something)	CP's awareness and familiarity with PTPC for prospective Hajj and Umrah pilgrims
D2. Skills (An ability or proficiency acquired through practice)	CP's skills, practice, and ability to provide PTPC for prospective Hajj and Umrah pilgrims
D3. Social/professional role and identity (A coherent set of behaviors and displayed personal qualities of an individual in a social or work setting)	CP's perception of his/her role in providing PTPC for prospective Hajj and Umrah pilgrims
D4. Beliefs about capabilities (Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use)	CP's confidence in providing PTPC for prospective Hajj and Umrah pilgrims
D5. Optimism (The confidence that things will happen for the best or that desired goals will be attained)	CP's confidence that they will provide PTPC for prospective Hajj and Umrah pilgrims
D6. Beliefs about Consequences (Acceptance of the truth, reality, or validity about outcomes of a behavior in a given situation)	CP's belief about benefits/disadvantages of providing PTPC for prospective Hajj and Umrah pilgrims
D7. Reinforcement (Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus)	The extent of recognition and reward the CP will receive for providing PTPC for prospective Hajj and Umrah pilgrims
D8. Intentions (A conscious decision to perform a behavior or a resolve to act in a certain way)	CP's intentions of providing PTPC for prospective Hajj and Umrah pilgrims



D9. Goals (Mental representation of outcomes or end states that an individual wants to achieve)	The relative importance for a CP to provide PTPC for prospective Hajj and Umrah pilgrims
D10. Memory, attention and decision processes (The ability to retain information, focus selectively on aspects of the environment and choose between two or more alternatives)	CP's aptitude to provide PTPC for prospective Hajj and Umrah pilgrims as part of their regular practice.
D11. Environmental context and resources (Any circumstances of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behavior)	CP's environment/situation that encourages/discourages the provision of PTPC for prospective Hajj and Umrah pilgrims
D12. Social influences (Those interpersonal processes that can cause individuals to change their thoughts, feelings, or behaviors)	CP's surrounding relationships that influences them to provide PTPC for prospective Hajj and Umrah pilgrims
D13. Emotion (A complex reaction pattern involving experiential, behavioral, and physiological elements, by which the individual attempts to deal with a personally significant matter or event)	CP's emotions surrounding the provision of PTPC for prospective Hajj and Umrah pilgrims
D14. Behavioral regulation (Anything aimed at managing or changing objectively observed or measured actions)	CP's management / planning in providing PTPC for prospective Hajj and Umrah pilgrims

Supplementary file 3:
Table 3. Interview topic guide
Description of Current Practices:
Have you ever provided pre-travel consultation for prospective Hajj and Umrah pilgrims? If so, could you share your experiences in providing such consultations?
Prompt: What is your typical approach? How often do you offer this consultation? Is it weekly, monthly, or annually? What specific services, advice, or products do you provide? And what motivates you to offer these consultations?
Knowledge:
Could you please provide information about pre-travel pharmacist consultations for prospective Hajj and Umrah pilgrims? What, in your opinion, constitutes such consultations? Why is it important to conduct them? What topics do you believe should be addressed during these consultations? Are you familiar with any recommendations, guidelines, protocols, or sources of information for conducting these consultations?
Skills:
Do you possess knowledge of how to conduct pre-travel pharmacist consultations for prospective Hajj and Umrah pilgrims? Do you believe you have the necessary skills to offer such consultations? What specific skills or training do you think are required or beneficial for providing these consultations?
Social/professional role and identity:
Do you believe community pharmacists should conduct pre-travel consultations for prospective Hajj and Umrah pilgrims? To what extent do you perceive this consultation as part of your role?
Beliefs about capabilities:
How confident are you in your ability to provide pre-travel consultations for prospective Hajj and Umrah pilgrims?
i. If the informant reported high confidence: Can you elaborate on why?
ii. If the informant reported low confidence: Can you elaborate on why? What would help you gain confidence?
iii. If the informant reported that he/she is not currently providing these consultations: I understand that you are not currently offering this service. However, I would like to know your level of confidence in providing the consultation. Can you elaborate on why?
Prompt: How difficult or easy is it for you to conduct these consultations?
Optimism:
In your opinion, what is the future of pre-travel consultations for prospective Hajj and Umrah pilgrims?
Prompt: What do you see as the future role of community pharmacists in this area? How confident are you that your pre-travel consultations will yield positive outcomes?
Beliefs about consequences:
What do you think will happen if you provide pre-travel consultations for prospective Hajj and Umrah pilgrims?



Prompt:
What are the benefits to:
i. You?
ii. Patients/Customers?
iii. Your community pharmacy?
What are the risks of not providing consultations to:
i. You?
ii. Patients/Customers?
iii. Your community pharmacy?
Reinforcement:
In your opinion, what rewards might a pharmacist receive for providing the consultations? What factors could reinforce you to offer these consultations?
Intentions:
Are you willing to provide these consultations regularly at your pharmacy? What motivates you to offer or not offer these consultations?
Goals:
If you provide pre-travel consultations for prospective Hajj and Umrah pilgrims, do you think other services at your pharmacy will be disrupted? What do you aim to achieve through these consultations?
Memory, attention, and decision processes:
How do you decide whether or not to offer pre-travel pharmacist consultations for prospective Hajj and Umrah pilgrims? What processes do you typically follow when providing these consultations?
Environmental context and resources:
What factors make it easier or support you in providing the consultation? What factors make it difficult or hinder you from providing the consultation?
Prompt: Consider aspects such as work environment, resources, facilitators/barriers, competing tasks or time, staffing, space, facilities, access to information, patient factors, etc.
Social influences:
In your opinion, who supports or approves of your provision of pre-travel pharmacist consultations for prospective Hajj and Umrah pilgrims?
Prompt: Do you believe doctors would support you, as a pharmacist, in providing these consultations? What about your peers, travel agents, other healthcare professionals, the public, or patients, and professional bodies? Can you elaborate on the reasons for their support or lack thereof?
Emotion:
How does providing pre-travel consultation for prospective Hajj and Umrah pilgrims make you feel?
Prompt: Happy, grateful, anxious, uncomfortable, etc.
Can you elaborate on why you feel this way? Does your emotional state make it easier or more difficult to conduct additional consultations?
Behavioral regulation:
In your community pharmacy, is there any vision, protocol, or policy that encourages you to conduct pre-travel consultations for prospective Hajj and Umrah pilgrims? How do you ensure that the consultations you provide are appropriate for the situation? What kind of support would you need to enhance the quality of your consultations?
Closing:
Is there anything else you would like to add regarding the topic?

