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ORIGINAL ARTICLE

Factors Associated with the Usage of Pharmacy Value-Added Services at Public Health Clinics in the State of Perlis, Malaysia

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ABSTRAK

Perkhidmatan nilai tambah farmasi dilaksanakan untuk memudahkan pesakit mengisi semula preskripsi kronik mereka di kemudahan kesihatan awam di Malaysia. Namun, masih banyak informasi yang tidak diketahui mengenai kesedaran, sikap dan praktis pesakit terhadap perkhidmatan nilai tambah farmasi yang disediakan oleh klinik kesihatan. Kajian ini dilakukan untuk mengkaji faktor-faktor yang berkaitan dengan penggunaan perkhidmatan nilai tambah farmasi di klinik kesihatan awam di Perlis, Malaysia. Kajian keratan rentas dilakukan dari Januari hingga Mac 2021 di ruang menunggu farmasi di semua klinik kesihatan awam di Perlis. Semua pesakit (≥18 tahun) yang mengambil ubat kronik dan mendapatkan rawatan di klinik kesihatan di Perlis direkrut dalam kajian ini dengan menggunakan kuota sampling. Data dikumpul dengan menggunakan soal selidik yang dikendalikan sendiri. Analisis deskriptif mengenai penggunaan, kesedaran dan sikap responden dilakukan, diikuti dengan regresi logistik berganda. Sebanyak 582 pesakit memberi maklum balas terhadap kajian ini (kadar tindak balas, 97.0%). Hanya 12.9% responden menggunakan perkhidmatan nilai tambah farmasi yang ditawarkan oleh klinik kesihatan. Umur, jantina, etnik, tahap pendidikan, pekerjaan, pendapatan isi rumah bulanan, tempoh tinggal di Perlis, jarak dari rumah ke klinik, skor kesedaran, dan sikap adalah faktor yang berkaitan dengan amalan perkhidmatan nilai tambah farmasi ($p<0.05$). Kesimpulannya, jumlah pesakit yang menggunakan perkhidmatan tambah nilai farmasi di klinik kesihatan di Perlis masih rendah. Hasil kajian menunjukkan bahawa promosi perkhidmatan tambah nilai farmasi yang lebih luas perlu dilakukan untuk memastikan lebih banyak pesakit dapat manfaat daripada perkhidmatan ini.

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Kata kunci: faktor, Malaysia, perkhidmatan farmasi, pesakit

ABSTRACT

Pharmacy value-added services were developed to make it easier for patients to refill their chronic prescriptions in public health facilities in Malaysia. However, little is known about patients' awareness, attitudes and practice towards pharmacy value-added services provided by health clinics. This study was conducted to investigate factors associated with the usage of pharmacy value-added services at public health clinics in Perlis, Malaysia. A cross-sectional study was conducted from January to March 2021 at the pharmacy waiting area of all public health clinics in Perlis. All patients (≥18 years old) taking chronic medications and with the need to follow-up at the health clinic in Perlis were recruited in this study using quota sampling. Data was collected using a validated self-administered questionnaire. Descriptive analyses on the usage, awareness and attitudes of respondents were performed, followed by multiple logistic regression. A total of 582 patients responded to this study (response rate, 97.0%). Only 12.9% of respondents used pharmacy value-added services offered by health clinics. Age, gender, ethnicity, education level, occupation, monthly household income, length of stay in Perlis, distance from home to the clinic, total awareness and attitudes scores were factors significantly associated with the practice of pharmacy value-added services after adjusting for other variables ($p<0.05$). In conclusion, the proportion of patients using pharmacy value-added services at health clinics in Perlis is still low. The study's findings suggest that a more extensive promotion of pharmacy value-added services is needed to ensure more patients could benefit from these services.

Keywords: factors, Malaysia, patients, pharmacy services

INTRODUCTION

The Ministry of Health, Malaysia is the country's major healthcare provider, with a nationwide network of hospitals and primary care clinics (World Health Organization 2012). In addition to the care of acute illnesses, public health clinics provide comprehensive health services for non-communicable diseases (Ramli & Taher 2008). As the population ages, the prevalence of chronic diseases and the use of chronic medications increases. Patients with chronic illnesses who seek treatment from public health facilities are frequently given multi-drug prescriptions that last longer than a month. Consequently, the increasing demand for continual pharmaceutical refill supplies at the conventional pharmacy counter has overloaded the existing health system, resulting in long waiting times in pharmacy settings.

The Pharmaceutical Services Programme, Ministry of Health,

Malaysia has developed several novel solutions to optimise pharmaceutical healthcare delivery (Tan & Gan 2016). Pharmacy value-added services assure drug supply continuity, shorten waiting times when refilling medications at pharmacies and avoid overcrowding in waiting areas (Pharmaceutical Services Programme 2016). All patients are eligible for these services at no cost. Types of pharmacy value-added services available in public health facilities are determined mainly by the demand in local settings and the number of regular patients. Perlis is the smallest state in Malaysia, with a population of 250,000 people (Department of Statistics Malaysia 2019). There were ten government health clinics in Perlis offering pharmacy value-added services to patients to improve the quality of pharmaceutical care.

The most extensively used pharmacy value-added service in Perlis is the Pharmacy Appointment Card System. Patients' medications were prepared prior to the date of drug collection to reduce waiting times. Furthermore, Integrated Drug Dispensing System and Medicines Delivery by Post were offered to cater to patients staying far away from the health facilities. Patients can refill their subsequent prescriptions through the Integrated Drug Dispensing System at any hospital or clinic listed under the Ministry of Health, Malaysia that is close to their house or workplace. Patients can also opt for Medicines Delivery by Post, which allows them to have their medications delivered to a specific address using postal services. However, patients will be charged with a standard postal fee when Pos Malaysia delivers their parcel.

Kangar Health Clinic started Park & Take services in 2015 after considering the clinic's parking issues. On the scheduled date for drug collection, patients were offered to park their vehicles in a designated area and pick up their drugs at a neighbouring pharmacy counter. Besides, patients with a hectic schedule can use the Drop and Take service, which allows them to drop off their prescriptions at the pharmacy counter and pick up their medications when they are ready. Amidst the COVID-19 pandemic, WhatsApp and Take was introduced by most clinics in Perlis. Patients using this service are required to send their details along with their preferred date and time of medication collection to the pharmacy. Their medications will be prepared prior to the arrival of patients. This service can shorten waiting times, improve pharmaceutical delivery and patients' satisfaction.

In recent years, the practice of pharmacy value-added services has been increasing. However, Perlis has a relatively low pharmacy value-added service utilisation rate compared to other states in Malaysia. In 2020, only 26.5% of patients with chronic prescriptions used pharmacy value-added services provided by public health clinics to refill their medicines. To date, there have been no studies on pharmacy value-added services in health clinic settings in Perlis. Information on patients' awareness and attitudes towards pharmacy value-added services provided by health

clinics is still sparse. The current study was conducted to fill this knowledge gap by investigating factors associated with pharmacy value-added services usage at public health clinics in Perlis.

MATERIALS AND METHODS

This cross-sectional study was carried out at all public health clinics in Perlis, Malaysia, from January to March 2021. The inclusion criteria of this study were patients aged 18-years-old and above taking chronic medications and need to follow-up at the health clinic in Perlis. Those who could not read and understand the Malay language were excluded from this study. The OpenEpi sample size calculator was used to calculate the sample size in this study. Sample size estimation was based on the findings from a previous study (Lau et al. 2018). According to that study, age, gender, and ethnicity were significantly associated with the utilisation of pharmacy value-added services (Lau et al. 2018). If the Type I error probability and precision were 0.05, respectively, we needed to study 530 samples. After taking into consideration of 10% dropout rate, the final sample size was 589.

A self-administered questionnaire was adapted from a previous study with the permission from the authors (Jong & Haris 2018). This questionnaire measured respondents' socioeconomic backgrounds as well as their knowledge, attitudes and practice of pharmacy value-added services. There were eight questions measuring sociodemographic characteristics, seven questions for awareness, 15 questions about attitudes and two questions related to the utilisation of pharmacy value-added services. Patients' awareness towards pharmacy value-added services were measured with dichotomous questions (Yes or No). A score of one was given for each 'Yes' answer, and zero for each 'No' answer. Each attitude statement was graded on a five-point Likert scale: 1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree. The raw scores for awareness and attitudes towards pharmacy value-added services were summed up and transformed into percentage scores. The practice of pharmacy value-added services was measured with dichotomous outcomes (Yes or No). Reasons for not using pharmacy value-added services were also included in the questionnaire.

The questionnaire was translated into the Malay language using the back-translation method. Content validation was performed among five senior pharmacists with at least five years of working experience in health clinics. The reliability of the questionnaire was determined using Cronbach's alpha calculation. A reliability coefficient of 0.7 or higher was acceptable in this study. The overall alpha for this study was 0.89, indicating the data was in the acceptable range of reliability.

Data collection was conducted by two investigators using a self-administered questionnaire. The quota sampling method was used to collect samples from ten health clinics in Perlis (60 respondents from each clinic). The investigators approached participants in the waiting area of the pharmacy

Table 1: Sociodemographic characteristics of study respondents, n=582

Variable	n (%)	Mean (SD)
Age		49.17 (12.30)
Gender		
Male	294 (50.5)	
Female	288 (49.5)	
Ethnicity		
Malay	416 (71.5)	
Chinese	91 (15.6)	
Indian	39 (6.7)	
Others	36 (6.2)	
Education		
No formal education	91 (15.6)	
Primary school	35 (6.0)	
Secondary school	287 (49.3)	
College or university	169 (29.0)	
Occupation		
Unemployed	117 (20.1)	
Self-employed	198 (34.0)	
Government sector	156 (26.8)	
Private sector	72 (12.4)	
Retired	39 (6.7)	
Monthly income		
No income	132 (22.7)	
<2000 MYR	195 (33.5)	
2001-4000 MYR	174 (29.9)	
4000-6000 MYR	70 (12.0)	
>6000 MYR	11 (1.9)	
Length of stay in Perlis (years)		
20	85 (14.6)	
21-40	263 (45.2)	
>40	234 (40.2)	
Distance from home to clinic (km)		
<5	122 (21.0)	
5-10	403 (69.2)	
>10	57 (9.8)	

SD=Standard deviation; 1 MYR=0.25 USD

unit in each clinic. Informed consent was obtained, and participants were given ten minutes to complete the questionnaire. The Statistical Packages for Social Sciences (SPSS) Software Version 28.0 (IBM Corp., Armonk, NY,USA) was used to analyse the data in this study. Firstly, normality tests for continuous data were performed to examine skewness and kurtosis (Kim 2013). Then, descriptive analyses of sociodemographic variables, awareness, attitudes and practice of pharmacy value-added services were conducted. Univariable analyses (Independent t-test, Chi-square, and Fisher exact tests) were used to evaluate each independent variable's association with respondents' practice of pharmacy value-added services. Variables in univariable analyses with a p-value less than 0.25 were included in

Table 2: Percentage of respondents using pharmacy value-added services, n=582

Usage pharmacy value-added service	n (%)	
	Yes	No
Are you currently using any of the pharmacy value-added services provided by the health clinic?	75 (12.9)	507 (87.1)

the downstream analysis using multiple logistic regression (Zhang 2016). A p-value of 5% or lower was considered to be statistically significant.

RESULTS

During the three months of the data collection period, 600 questionnaires were distributed. A total of 582 patients responded to this study, providing a response rate of 97.0%. Table 1 shows patients' sociodemographic backgrounds in this study. The mean age of study respondents was 49.17 (SD=12.30). Slightly more than half of the respondents were male (n=294, 50.5%). The study respondents were dominated by Malay (n=416, 71.5%), followed by Chinese (n=91, 15.6%), Indian (n=39, 6.7%) and others (n=36, 6.2%). Most respondents (n=287, 49.3%) were secondary school leavers. Majority of the respondents were self-employed (n=198, 34.0%), followed by working in government sector (n=156, 26.8%), unemployed (n=117, 20.1%), private sector (n=72, 12.4%) and retired as the least (n=39, 6.7%). Most respondents received a monthly household income of less than 2000 MYR per month (n=195, 33.5%). Only 13.9% (n=81) of respondents had a monthly household income above 4000 MYR. Only 12.9% (n=75) of respondents used pharmacy value-added services to collect their medications from health clinics (Table

Table 3: Respondents' awareness towards pharmacy value-added services, n=582

Awareness towards pharmacy value-added services	n (%)	
	Yes	No
1. Have you heard about "Park & Take" pharmacy service which is offered by the government hospitals or clinics?	158 (27.1)	424 (72.9)
2. Have you heard about "Medicines Delivery by Post" that provides delivery on partial medications (monthly medication supply) to patients' home using Poslaju service?	81 (13.9)	501 (86.1)
3. Do you know that you can collect your medicine in other government clinic/hospital beside the clinic/hospital which you regularly attend by Integrated Drug Dispensing System?	315 (54.1)	267 (45.9)
4. One of the objectives of pharmacy value-added services is to reduce patient's waiting times at the pharmacy counter.	542 (93.1)	40 (6.9)
5. One of the objectives of "Park & Take" is to reduce parking problem in hospitals and clinics.	532 (91.4)	50 (8.6)
6. One of the objectives of pharmacy value-added services is to ensure continuous supply of medications to patients.	548 (94.2)	34 (5.8)
7. All value-added services are free of charges except "Medicines Delivery by Post" that charges a delivery fee (Poslaju fee).	377 (64.8)	205 (35.2)

Table 4: Respondents' attitudes towards Pharmacy Value-added Services, n=582

Item	n (%)				
	Very not agree	Not agree	Neutral	Agree	Very agree
1. Overall, I think using pharmacy value-added services to collect monthly medication supply from the government pharmacy is convenient.	3 (0.5)	16 (2.7)	22 (3.8)	114 (19.6)	427 (73.4)
2. Overall, I think using pharmacy value-added services to collect monthly medication supply saves my time.	3 (0.5)	39 (6.7)	15 (2.6)	92 (15.8)	433 (74.4)
3. Using pharmacy value-added services to collect monthly medication supply is beneficial.	45 (7.7)	12 (2.1)	44 (7.6)	88 (15.1)	393 (67.5)
4. Most people who are important to me think that I should use one of the pharmacy value-added services to collect monthly medicine in the next 3 months.	45 (7.7)	97 (16.7)	164 (28.2)	117 (20.1)	159 (27.3)
5. It is expected of me to use one of the value-added services to collect monthly medicine.	10 (1.7)	14 (2.4)	37 (6.4)	136 (23.4)	385 (66.2)
6. I am encouraged to use one of the pharmacy value-added services to collect my monthly medicine.	21 (3.6)	9 (1.5)	36 (6.2)	131 (22.5)	385 (66.2)
7. Overall, I think using pharmacy value-added services to collect monthly medication supply from the government pharmacy is not good.	360 (61.9)	49 (8.4)	61 (10.5)	52 (8.9)	60 (10.3)
8. I think "Medicines Delivery by Post" (medicine post to patient's house) reduces my transportation cost.	13 (2.2)	84 (14.4)	144 (24.7)	181 (31.1)	160 (27.5)
9. I think using pharmacy value-added services to collect my monthly medication supply from the government pharmacy is easy.	0	18 (3.1)	25 (4.3)	177 (30.4)	362 (62.2)
10. I have no obstacles using pharmacy value-added services to collect my monthly medicine in the next 3 months.	95 (16.3)	72 (12.4)	122 (21.0)	166 (28.5)	127 (21.8)
11. I want to use pharmacy value-added services to collect my monthly medicine supply within the next 3 months.	119 (20.4)	54 (9.3)	45 (7.7)	121 (20.8)	243 (41.8)
12. The decision to use one of the pharmacy value-added services in the next 3 months is entirely up to me.	2 (0.3)	189 (32.5)	19 (3.3)	123 (21.1)	249 (42.8)
13. I am confident that I can use one of pharmacy value-added services to collect my monthly medicine within the next 3 months.	13 (2.2)	11 (1.9)	59 (10.1)	119 (20.4)	380 (65.3)
14. I am interested to use one of the pharmacy value-added services to collect my monthly medicine within the next 3 months.	13 (2.2)	5 (0.9)	84 (14.4)	145 (24.9)	335 (57.6)
15. Given a scale from 1 to 5, how far is your intention to use one of the pharmacy value-added services to collect your monthly medicine within the next 3 months?	25 (4.3)	16 (2.7)	77 (13.2)	224 (38.5)	240 (41.2)

Table 5: Overall awareness and attitudes score towards pharmacy value-added services

	Mean score (SD)	Percentage score (%)	Total Score
Awareness	4.39 (1.63)	62.7	7
Attitudes	59.51 (11.94)	79.3	75

SD=Standard deviation

2).

Of the 582 respondents, most of them had never heard of Park & Take (n=424, 72.9%) and Medicines Delivery by Post (n=501, 86.1%) offered by the health clinics. More than half of the participants reported they were aware that their medications might be refilled from hospitals or clinics other than those they usually go to via the Integrated Drug Dispensing System (n=315, 54.1%). Over 90% of the respondents were aware that pharmacy value-added services aim to shorten patients' waiting times at the pharmacy counter (n=542, 93.1%). Similarly, the majority were aware that the objective of pharmacy value-added services is to assure a continuous supply of pharmaceuticals to patients (n=548, 94.2%). The majority of respondents also knew that all pharmacy value-added services are free, with the exception of the Medicines Delivery by Post (n=377, 64.8%). Respondents' awareness of pharmacy value-added services is shown in Table 3.

The majority stated that collecting monthly prescription supplies from the government pharmacy via pharmacy value-added service is convenient (93.0%, n=541). Most respondents agreed that using pharmacy value-added services to collect monthly drug supply saves time (90.2%, n=525). Besides, a great number of them believed that using pharmacy value-added services to replenish their monthly medication supply is helpful (82.6%, n=481). More than 90% stated it was simple to fill their prescriptions at a government pharmacy using pharmacy value-added service. A total of 464 respondents planned to refill their chronic medicines using one of the pharmacy value-added services in the following three months. Table 4 showed respondents' attitudes towards pharmacy value-added services.

Table 5 showed the overall awareness and attitudes score towards pharmacy value-added services. The mean scores for awareness and attitudes of pharmacy value-added services were 4.39 (SD=1.63) and 59.51 (SD=11.94), respectively. The majority of respondents stated that they did not use pharmacy value-added

Table 6: Possible reasons for not using pharmacy value-added services, n=582

Reason	n (%)
1. Do not know the availability of pharmacy value-added services	445 (76.5)
2. Find it complicated or inconvenient	42 (7.2)
3. More expensive than traditional counter service	14 (2.4)
4. Others	81 (13.9)

Table 7: Univariable analysis on respondents' practice on pharmacy value-added services

Variable	Practice on pharmacy value-added services, n (%)		Test-statistics	p-value
	Yes	No		
Age[a]	46.81 (13.61)	49.52 (12.07)	1.63[£]	0.107
Gender			27.30[#]	<0.001*
Male	59 (20.10)	235 (79.90)		
Female	16 (5.60)	272 (94.40)		
Ethnicity			6.62[#]	0.010*
Malay	63 (15.10)	353 (84.90)		
Non-Malay	12 (7.20)	154 (92.80)		
Education level			16.05[#]	<0.001*
≤Primary school	3 (2.40)	123 (97.60)		
Secondary school	47 (16.40)	240 (83.60)		
College or university	25 (14.80)	144 (85.20)		
Occupation			6.39[#]	0.094
Unemployed/Retired	15 (9.60)	141 (90.40)		
Self-employed	26 (13.10)	172 (86.90)		
Government sector	28 (17.90)	128 (82.10)		
Private sector	6 (8.30)	66 (91.70)		
Monthly income			12.68[$]	0.011*
No income	15 (11.40)	117 (88.60)		
<2000 MYR	22 (11.30)	173 (88.70)		
2001-4000 MYR	19 (10.90)	155 (89.10)		
4000-6000 MYR	19 (27.10)	51 (72.90)		
>6000 MYR	0	11 (100.00)		
Length of stay in Perlis (years)			13.56[#]	0.001*
≤20	12 (14.10)	73 (85.90)		
21-40	47 (17.90)	216 (82.10)		
>40	16 (6.80)	218 (93.20)		
Distance from home to clinic (km)			14.01[#]	0.001*
<5	17 (13.90)	105 (86.10)		
5-10	42 (10.40)	361 (89.60)		
>10	16 (28.10)	41 (71.90)		
Total awareness score[a]	6.31 (0.96)	4.10 (1.51)	-17.03[£]	<0.001*
Total attitudes score[a]	49.23 (15.58)	61.03 (10.50)	6.35[£]	<0.001*

a=presented as mean (standard deviation); 1 MYR = 0.25 USD; £=t-statistic; #=Pearson's Chi-square; $=Fisher's Exact Test; *=p<0.05

Table 8: Multiple logistic regression on respondents' practice on pharmacy value-added services

Variable	**Crude OR (95% CI)**	**p-value**	**Adjusted OR** (95% CI)	**p-value**
Age	0.98 (0.96, 1.00)	0.107	1.10 (1.04, 1.16)	0.001*
Gender		<0.00*		0.001*
Male (R)				
Female	0.23 (0.13, 0.42)		0.16 (0.06, 0.46)	
Ethnicity		0.010*		0.031*
Malay	2.29 (1.20, 4.37)		0.25 (0.07, 0.88)	
Non-Malay (R)				
Education level		<0.001*		<0.001*
≤Primary school	0.14 (0.41, 0.48)		0.001 (0, 0.01)	<0.001*
Secondary school	1.13 (0.67, 1.91)		0.12 (0.03, 0.49)	0.003*
College or university (R)				
Occupation		0.094		<0.001*
Unemployed/Retired	0.49 (0.25, 9.5)		0.28 (0.01, 0.18)	<0.001*
Self-employed	0.69 (0.38, 1.24)		0.26 (0.07, 0.97)	0.046*
Private sector	0.42 (0.16, 1.05)		0.02 (0.01, 0.21)	0.001*
Government sector (R)				
Monthly income		0.011*		<0.001*
No income (R)				
<2000 MYR	0.99 (0.49, 1.99)		0.03 (0.01, 0.14)	<0.001*
2001-4000 MYR	0.96 (0.47, 1.96)		0.02 (0.01, 0.12)	0.003*
4000-6000 MYR	2.91 (1.37, 6.17)		0.08 (0.01, 0.43)	0.998
>6000 MYR	NA		NA	
Length of stay in Perlis (years)		0.001*		0.003*
≤20	2.24 (1.01, 4.96)		0.01 (0.01, 0.19)	0.001*
21-40	2.97 (1.63, 5.39)		0.07 (0.01, 0.34)	0.001*
>40 (R)				
Distance from home to clinic (km)		0.001*		0.002*
<5 (R)				
5-10	0.72 (0.39, 1.31)		0.18 (0.05, 0.60)	0.005*
>10	2.41 (1.11, 5.22)		1.39 (0.26, 7.56)	0.696
Total awareness score[a]	4.97 (3.61, 6.82)	<0.001*	19.40 (8.41, 44.75)	<0.001*
Total attitudes score[a]	0.93 (0.92, 0.95)	<0.001*	0.90 (0.85, 0.96)	0.001*

OR=odds ratio; 95% CI=95% confidence interval; 1 MYR = 0.25 USD; (R)=reference group; *=p<0.05, NA=data not available

services because they were unaware that such services were available in the pharmacy units (Table 6).

Table 7 showed the descriptive association between respondents' sociodemographic characteristics, total awareness and attitudes score with practice on pharmacy value-added services. In this study, six sociodemographic factors (gender, ethnicity, education level, occupation, monthly household income, length of stay in Perlis and distance from home to clinic), as well as total awareness and attitude score, were significantly associated with respondents' practice on pharmacy value-added services in Perlis (p<0.05). The results from the multiple logistic regression revealed that age, gender, ethnicity, education level, occupation, monthly household income, length of stay in Perlis, distance from home to the clinic, total awareness and attitudes scores were significantly associated with the practice of pharmacy value-added services after adjusting for other variables (p<0.05) (Table 8). The utilisation of pharmacy added value services was positively associated with increasing age and total awareness score. Conversely, being female, Malay, having a lower education level, working for non-government organisations, having a lower monthly household income, living in Perlis for less than 40 years, staying within 5-10 km from the clinic and having a higher attitude score were negatively associated with the use of pharmacy added value services.

DISCUSSION

In Perlis, all public health clinics provided at least two pharmacy value-added services to improve pharmaceutical care delivery. The key performance indicator for all government health facilities requires at least 1 in 5 (20%) follow-up prescriptions to be dispensed by pharmacists via the innovative pharmacy value-added services (Pharmaceutical Services Programme 2016). Starting from the year 2021, the target was increased to 25%. However, it was found that only 12.9% of study participants used one of these services to get their prescriptions refilled. Therefore, pharmacy value-added services remained a new concept to most patients with chronic medications who had not been exposed to these services. Consistently, only a small percentage of them were aware of Park and Take and Medicines Delivery by Post, which are only available at the Kangar Health Clinic.

All prescriptions registered with pharmacy value-added services would be well prepared before the day of drug collection. As a result, patients who have enrolled in any of the pharmacy value-added services offered by health clinics can pick up their partial medicine supply quickly and efficiently on the scheduled drug collection date. Compared to the traditional dispensing system, most respondents in this study were aware that these services aimed to reduce patients' waiting times at the pharmacy counter. Besides, the ease of collecting medications would ensure a continuous supply of

medicines for patients with chronic diseases. Consequently, a vast majority of the study respondents reported they would adopt one of these services to fill their medications in the next three months.

In this study, older patients were more likely to adopt pharmacy value-added services than young patients. Due to medical and social advancement globally, life expectancy at birth is increasing in almost every country (Wordometer 2021). Normal ageing is not a disease, although it results in structural and functional decline, leading to increased susceptibility to disease (Chan & Kamala Devi 2015). In Malaysia, population ageing leads to an increase in age-related morbidities and impairments in older adults, which increased the usage of drugs among the elderly. Consequently, older adults with multiple chronic medications would frequently be targeted and offered one of the pharmacy value-added services to help them with their medication refills. A study conducted in Perak, Malaysia, found that patients aged more than 60 reported greater satisfactory scores on pharmacy value-added services offered by the health facility (Chew et al. 2021).

In addition, men were shown to be more likely than women to use pharmacy value-added services in this study. The findings could be explained by the fact that male patients with chronic illnesses had a lower satisfaction score for long waiting times in pharmacies and were more likely to seek more efficient options to refill their medications (Alotaibi et al. 2021). The current study also found that patients with a higher level of education (colleges or universities) were more likely to use pharmacy value-added services. They would be interested in learning more about pharmaceutical care delivery services provided by the health facilities. Moreover, government employees were found to be the major population of using pharmacy value-added services, probably because they are more aware of healthcare services advertising. Respondents who had lived in Perlis for more than 40 years and stayed closer to the health clinics were more likely to use one of the pharmacy value-added services offered by the nearest health facilities. The local people were more aware of the benefits of the services, therefore used them to refill their prescriptions.

Moreover, those with a greater awareness of pharmacy value-added services were found to be users of one of these services provided by health clinics. Those who understand the advantages of these services will take the opportunity to pick up their monthly pharmaceutical supply via pharmacy value-added services offered by the pharmacies (Lau et al. 2018; Loh et al. 2017). Although the current study's result revealed a negative association between respondents' levels of attitudes and practice on pharmacy value-added services, further studies are needed to explore the association between attitudes and practice towards pharmacy value-added services in Malaysia to form a more conclusive opinion.

The use of pharmacy value-added services provided by health clinics in Perlis was low in this study.

According to the findings, more widespread promotion is required to increase patient awareness of these services. Due to the advancement in technology, pharmacy value-added services can now be accessed via mobile applications such as the Medicines Supply Management System (MyUBAT), which was launched in April 2021 (Pharmaceutical Services Programme 2021). This new application was created to ensure that patients may manage the refill of their medications quickly and easily using pharmacy value-added services.

The results of the current study were limited only to the patients who attended public health clinics in Perlis. Concerns about the results' generalisability to the entire population may arise. Besides, patients attending hospitals may have different sociodemographic characteristics, awareness, and attitudes towards pharmacy value-added services worth exploring.

CONCLUSION

In conclusion, this study highlighted the proportion of patients using pharmacy value-added services in health clinics in Perlis was low. Moreover, the present study addressed the usage of pharmacy value-added services was associated with patients' age, gender, ethnicity, education level, occupation, monthly household income, duration of stay in Perlis, distance from home to clinic, total awareness, and attitudes score.

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REFERENCES

Alotaibi, N.H., Alzarea, A.I., Alotaibi, A.M., Khan, Y.H., Mallhi, T.H., Alharbi, K.S., Alruwaili, N.K., Alanazi, A.S., Hassan, A., Alotaib, B.S. 2021. Exploring satisfaction level among outpatients regarding pharmacy facilities and services in the Kingdom of Saudi Arabia; a large regional analysis. *PloS One* **16**(4): e0247912.

Chan, M.F., Kamala Devi, M. 2015. Factors affecting life expectancy: evidence from 1980-2009 data in Singapore, Malaysia, and Thailand. *Asia Pac J Public Health* **27**(2): 136-46.

Chew, L.S., Yeo, Y.L., Chang, C.T., Chew, C.C., George, D., Rajan, P. 2021. Satisfaction among patients and caregivers receiving value-added services during the Covid-19 pandemic outbreak in a tertiary hospital in the Perak state of Malaysia. *J Pharm Health Serv Res* **12**(4): 477-84.

Department of Statistics Malaysia. 2019. Perlis. https://www.pharmacy.gov.my/v2/en/documents/guideline-pharmacy-value-added-services.html [14 July 2021]

Jong, P.J., Haris, H. 2018. Awareness and Attitudes of Non-healthcare Professionals or Workers towards Pharmacy Value Added Services in Selangor, Malaysia. Faculty of Pharmacy. Asia Metropolitan University. https://amuresearch.files.wordpress.com/2018/12/Awareness-and-Attitudes-of-Non-Healthcare-Professionals-or-Workers-towards-Pharmacy-Value-Added-Services-in-Selangor-Malaysia.-Jong-P.-J.-Haris-H..pdf [14 October 2020]

Kim, H.Y. 2013. Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. *Restor Dent Endod* **38**(1): 52-4.

Lau, B.T., Abdul-Rani, N.N.A., Ng, S.Y., Wong, S.N. 2018. Satisfaction of patients receiving value added-services compared to traditional counter service for prescription refills in Malaysia. *Pharm Pract (Granada)* **16**(1): 1075-81.

Wordometer. Life Expectancy of the World Population. 2021. https://www.worldometers.info/demographics/life-expectancy/#countries-ranked-by-life-expectancy [14 July 2021]

Loh, B.C., Wah, K.F., Teo, C.A., Khairuddin, N. M., Fairuz, F.B., Liew, J.E. 2017. Impact of value added services on patient waiting time at

the ambulatory pharmacy Queen Elizabeth Hospital. *Pharm Pract (Granada)* **15**(1): 846-52.

Pharmaceutical Services Programme. 2016. Guideline on Pharmacy Value Added Services. https://www.pharmacy.gov.my/v2/en/documents/guideline-pharmacy-value-added-services.html [14 July 2021]

Pharmaceutical Services Programme. 2021. Medicines Supply Management System for Pharmacy Value Added Services (MyUBAT). https://www.pharmacy.gov.my/v2/en/content/medicines-supply-management-system-pharmacy-value-added-services-myubat.html [10 September 2021]

Ramli, A.S., Taher, S.W. 2008. Managing chronic diseases in the Malaysian primary health care–a need for change. *Malays Fam Physician* **3**(1): 7-13.

Tan, C., Gan, V. 2016. Pharmacy value added services: Early begininings, current implementation, and challenges from the Malaysian experience. *Indian J Pharm Educ Res* **50**(3): 335-43.

World Health Organization. Regional Office for the Western Pacific. 2012. Malaysia health system review. WHO Regional Office for the Western Pacific. https://apps.who.int/iris/handle/10665/206911

Zhang, Z.H. 2016. Model building strategy for logistic regression: purposeful selection. *Ann Transl Med* **4**(6): 111-7.

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