Using Pharmacy Value Added Services (VAS) to Collect Repeat Medications: Awareness and Perception of Patients Toward Two Newly Introduced Variants

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Abstract

Introduction: Pharmacy Value Added Services (VAS) facilitate the collection of repeat medications at outpatient pharmacy departments (OPD) of Malaysian government facilities. Two new VAS variants, namely Scan and Collect, and WhatsApp and Collect were introduced in Sarawak General Hospital (SGH) in April 2019 to increase the uptake of VAS, which had plateaued.

Objective: The objective of this study was to determine the awareness and perception regarding these two new VAS variants among eligible patients who were not using the services six months post-implementation.

Methods: This cross-sectional study entailed distribution of self-administered questionnaires to patients collecting their repeat medications at OPD, SGH between October and December 2019. The VAS studied were (1) Scan (QR) code and Collect, and (2) WhatsApp and Collect, both introduced in April 2019. Included patients had partial medication supply, literate, and not using both services. Respondents' demographic data, experience in collecting medication, awareness towards current and new VAS, as well as perception and likelihood to adopt new VAS were collected.

Results: A total of 167 usable responses were analysed. Demographic characteristics were balanced. Lack of parking space was the main problem faced in collecting medications (n=126). One-third were current VAS users, and 46% (n=76) had heard about the new VAS variants, mainly from pharmacy staff (n=63). Service uptake was mainly hampered by the lack of understanding on how to use the service (n=52). Respondents largely perceived novel VAS as time-saving and convenient but remained neutral on the ease of use of these services. High likelihood (60%) to adopt both services were demonstrated. Diversifying avenues of service promotion and increasing ease of use may improve service uptake.

Conclusion: Pharmacy users mostly have positive perceptions of new VAS introduced but awareness of the service can be improved. Thus, efforts should be concentrated on ratification of identified barriers to improve service uptake.

Keywords: pharmacy service, repeat medication supply, outpatient pharmacy, awareness, Malaysia

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Introduction

Patients with chronic illnesses requiring long term medical therapy are often provided with repeat prescriptions by outpatient clinics, to be dispensed on a monthly basis at pharmacies (1). This practice reduces the frequency of clinic visits and is thus highly convenient for both doctors and patients alike, besides enabling treatment monitoring by pharmacists (2). However, an increase in the number of repeat prescriptions needing to be dispensed compelled pharmacies to provide alternative medication delivery options that are faster and more convenient, to better manage patient waiting time and experience (3). Various options are successfully introduced in countries around the world, including drive-through pharmacy services, pick-ups, home delivery services, mail order and robotised dispensing hubs (4).

In Malaysia, public healthcare facilities are the first port of call for the majority of the population when they have health problems (5). The popularity of these heavily subsidised government institutions, which provide both outpatient and inpatient services, resulted in high volumes of patients and prescriptions.

Based on latest published data, a total of 50.7 million outpatient prescriptions were dispensed by pharmacies in Malaysian public healthcare facilities in 2015, with 19.3 million (38%) in hospital outpatient pharmacies. Comparatively, only 42.4 million prescriptions were dispensed in 2011 (6). For patients on chronic medications, it is the policy of the Ministry of Health Malaysia (MOH) that medications are to be supplied on a monthly basis. Partial drug supply is purported to enhance the quality use of medicine, reduce medications wastage and improve patients' adherence to medications besides allowing monitoring of any side effects experienced by patients (7).

Unfortunately, the need for monthly supply and increase in prescription load resulted in long waiting time for patients collecting their medications at the outpatient pharmacies, as well as contributing to workplace stress and medication errors for pharmacy staff (4). In response, the Pharmaceutical Services Programme (PSP), MOH introduced innovative means for patients to refill their repeat prescriptions. These alternatives, collectively known as pharmacy value added services (VAS), include Integrated Drug Dispensing System (SPUB), Medicines by Post (UMP), Drive-Thru Pharmacy, Appointment Cards, as well as Fax/Email/SMS and Take (F.E.S.T) service (4,7). For these services, medications are prepared beforehand, and there is no need for patients to queue, endure a long wait or even go to the pharmacy for their refill prescriptions, depending on the variants chosen. Studies had found that patients were more satisfied collecting their medications via VAS compared to traditional pharmacy counters in Malaysia, with the main perceived benefit being the shorter waiting time needed (8,9). More importantly, VAS also reduced the overall waiting time in the outpatient pharmacy (10).

In line with this nationwide strategy, the outpatient pharmacy department (OPD) in Sarawak General Hospital (SGH) has offered all these VAS since 2011. However, despite being heavily advertised by pharmacy staff, patients' uptake was only moderate, with around 20% of repeat prescriptions being dispensed via the VAS platform in 2018. Several studies have highlighted various barriers that impede the uptake of these services in Malaysia. Patients using the Integrated Drug Dispensing System, which enable them to have repeat prescriptions dispensed at facilities nearest to their home instead of the de facto treating facilities, complained that they still had to spend time going through traditional counters at the appointed facility (8). Those using drive-through pharmacy services aired grouses regarding the impractical and unclear location of the drive-through counter, as well as traffic congestion at the drive through lane (10,11). They are also concerned that interaction with pharmacy staff will be reduced (12). Delayed postal delivery, concern of medication errors and additional fees imposed were issues leading to patient hesitation in utilising the postal delivery service (10). Besides these service specific complaints, patient's general lack of awareness and knowledge of VAS also contributed to the low uptake (10,11).

In order to improve the uptake of VAS and refresh the services offered, OPD in SGH introduced two new variants in April 2019, namely "Scan and Collect" and "WhatsApp and Collect". For Scan and Collect, a QR code is added onto repeat prescriptions for patients to scan and subsequently schedule the date of collecting their medicines online. For WhatsApp and Collect, patients just need to capture a picture of their repeat prescription and WhatsApp to a designated number to make the appointment. Both services aim to exploit the popularity of mobile phone-based services, increasing convenience and ease of use for patients, especially for the younger generations.

With the introduction of any new service, it is essential to determine patients' awareness and perceptions toward the service, as their acceptance and adoption can affect its long-term sustainability. High reuptake rate of VAS is also found to significantly minimise waiting time at OPD, and it is important that the newly introduced service will be able to contribute to this goal (11). To the best of our knowledge, these two variants are yet to be introduced in other government healthcare facilities, thus their receptiveness by patients is unknown. Therefore, this study aimed to determine the perceptions and awareness of patients yet to use these services, in order to identify the barriers faced in adoption and make recommendations for improvement.

Methods

Study design and setting

This cross-sectional study utilised self-administered questionnaires to ascertain patients' awareness and perceptions towards the Scan and Collect and WhatsApp and Collect VAS provided by the outpatient pharmacy department of Sarawak General Hospital (OPD, SGH). It was carried out from October to December 2019, six months after both services were introduced. Various promotional activities were carried out during these six months, including distribution of promotional leaflets, posters and videos, as well as verbally advertising to doctors and patients.

Recruitment and sampling

The population of the study were literate adult patients or their carers who had a prescription that was partially supplied by the OPD, SGH, and had yet to use the two novel VAS variants. Individuals who were illiterate, had psychiatric disorders, aged below 18 years old, not having prescriptions requiring partial supply of medications or have medications not suitable to be dispensed using VAS were excluded. Based on the figure of 26,947 unique patients in OPD, SGH with repeat prescriptions in 2019, and the proportion of patients who were aware of VAS being 0.4 as per Liana *et al*. (2015), the required sample size to achieve a representative sample with a precision of 0.075 was 164 as calculated using the PS Power and Sample Size Calculations software by Dupont and Plummer (12).

Development and validation of survey instrument

Previous studies evaluating customers' perception of drive-thru pharmacy service by Liana et al. (2015) and Hammour et al. (2019) served as references for the development of this questionnaire. Items that were not relevant to our setting were dropped, for example items specific to drive-thru pharmacy and promotional activities that were not carried out in our facility. The final questionnaire comprised items on patients' socio-demographics (six multiple choice questions), current experience collecting medications at OPD, SGH (three multiple choice questions), awareness about VAS in general (three multiple choice questions), awareness about Scan and Collect and WhatsApp and Collect (three multiple choice questions), perceived advantages and disadvantages of the service (eight three-point Likert scale questions), as well as willingness to take up the service (two five-point Likert scale questions).

The questionnaire which was originally in English was translated into Chinese and Malay by study authors, before being backtranslated to English by another pharmacist proficient in all three languages. The similarity in meaning for both original and back-translated English versions was adjudicated by two experienced pharmacists with research backgrounds. Differences in opinions were resolved via consensus to finalise the questionnaire. Content validity was performed by having ten patients completing each set of the questionnaire and commenting on the clarity and comprehension of the questions included. Minor changes were made before the questionnaire was finalised.

Data Collection

Data collection was carried out at the waiting area of OPD, SGH. Patients or their carers with repeat prescriptions were approached by study investigators while waiting to collect their medications. They were recruited if they fit the inclusion and exclusion criteria and provided informed consent after the study protocol was explained to them. Study investigators were in attendance to answer any questions throughout. For those not aware of the new VAS, the services were explained to them using a prepared pamphlet before they answer the section on perceptions toward the service.

Data analysis

Collected data were tabulated into Microsoft Excel, with descriptive data subsequently being presented as frequencies (n) and percentages (%). The significance of association between selected variables were then determined using Chi-square test or ANOVA based on the nature of the data. All data were analysed using IBM Statistical Package for the Social Sciences (SPSS) version 20.0.

Ethical consideration

The research was registered with the National Medical Research Register with the registration number NMRR-19-1239-48096, and ethical approval was granted by the Medical Research and Ethics Committee (MREC), Ministry of Health Malaysia [Ref:KKM/NIHSEC/P19-1265(5) dated July 11, 2019].

Results

A total of 172 subjects recruited. Respondents need to answer at least one item in each of the sections of the questionnaire for it to be included in the analysis. Five responses were discarded as they contained whole sections that were left empty. The other 167 responses were analysed. Respondents' demographic characteristics were summarised in Table 1. The age and gender of respondents were well distributed. Lack of parking space was the biggest problem faced in collecting repeat prescriptions at OPD, SGH (75.4%). The majority received their medicines within 30 minutes (72.2%) and were satisfied with the level of service provided (80.9%).

In terms of experience and knowledge on legacy VAS services, including Integrated Drug Dispensing System (SPUB), Fax/Email/SMS and Take (FEST), Medicines by Post (UMP) and Appointment card system, around half of total respondents were aware of at least one service, whereas one-third were using one of the services offered. Regarding the new variants, slightly less than half (46.1%) were aware of at least one service offered, predominantly via promotion by pharmacy staff (82.9%). Lack of service uptake was mainly contributed by the lack of understanding on how to use the service. This was summarised in Table 2.

Perception wise, the majority of respondents agreed that the new VAS services will save time, increase convenience and improve their compliance. Nearly half opined the new VAS will reduce interaction with pharmacists. However, most are confident that correct medications will be dispensed to them. This was summarised in Table 3.

Based on a five-point Likert scale (very unlikely to very likely), the likelihood of respondents to adopt both variants of VAS were encouraging, with 59.8% and 64.6% indicating that they are very likely or likely to use Scan and Collect and WhatsApp and Collect respectively in the future. The rest of the respondents were mostly neutral in their intention to adopt VAS. Likelihood to adopt was not predicted by respondents' demographics, but those who were current legacy VAS user were more likely to use the Scan and Collect in the future ($p=0.03$), whereas those aware of new VAS were more likely to use Whatsapp and Collect ($p=0.01$) (Table 4). Respondents who agreed that novel VAS saves time and reduces frequency of visits to the hospital are significantly likely to adopt both VAS ($p<0.01$ and $p=0.01$). Furthermore, those who disagreed that VAS had a complicated registration process nor had too many rules and regulations were significantly more likely to use WhatsApp and Collect (both $p<0.01$). This was summarised in Table 5.

Table 1: Demographic characteristics of respondents (n=167)

Characteristics	Frequency (n)	Percentage (%)
Gender		
Male	75	44.9%
Female	92	55.1%
Age #		
18-29 years old	53	32.3%
30-39 years old	42	25.6%
40-49 years old	39	23.8%
50 years old and above	30	18.3%
Collect for		
Yourself	73	43.7%
Family member	81	48.5%
Both	6	3.6%
Others (friends/colleagues/as carer)	7	4.2%
Difficulty faced in collecting medications *		
No parking	126	75.4%
Long waiting time	59	35.3%
Traffic congestion	47	28.1%
Distance	33	19.8%
No staff	20	12.0%
Travel cost	6	3.6%
Average waiting time for prescription refill ^		
Less than 15 minutes	19	11.4%
15-30 minutes	101	60.8%
30-60 minutes	40	24.1%
More than 60 minutes	6	3.6%
Satisfaction level with OPD service		
Satisfied	135	80.9%
Neutral	27	16.2%
Not satisfied	5	3.0%

There were three missing data points
* Respondents can choose more than one answer
^ There was one missing data point

Table 2: Experience and knowledge on VAS (n=167)

Characteristics	Frequency (n)	Percentage (%)
Awareness of current VAS services		
Integrated Drug Dispensing System (SPUB)	50	29.9%
Fax/Email/SMS and Take (FEST)	46	27.5%
Medicines by Post (UMP)	42	25.1%
Appointment card system	99	59.3%
Current VAS user #		
Yes	58	34.7%
No	104	62.3%
Awareness of new VAS variants (Scan & Collect, WhatsApp & Collect) ^		
Not aware	90	53.9%
Aware of WhatsApp & Collect	23	13.8%
Aware of Scan & Collect	7	4.2%
Aware of both	46	27.5%
Made aware via (n=76) *		
Promoted by pharmacy staff	63	82.9%
Family and friends	8	10.5%
Promotional leaflet	5	6.6%
Others	5	6.6%
Promoted by doctors	2	2.6%
Rationale of not enrolling in new VAS (n=76) *		
Don't understand how to use	52	68.4%
Lack of time	9	11.8%
Happy with current VAS	7	9.2%
Not interested	5	6.6%
Complicated	4	5.3%
No smartphone	2	2.6%

There were five missing data points
^ There was one missing data point
* Respondent can choose more than one answer

Table 3: Perceptions on new VAS

Statement	No. of responses #	Disagree n, (%)	Neutral n, (%)	Agree n, (%)
1. This service saves my time in queueing up to collect repeat medications.	165	1 (0.6)	34 (20.6)	130 (78.8)
2. This service reduces the frequency of visits to hospital to drop off prescription and collect medicines.	164	4 (2.4)	33 (19.8)	127 (76.0)
3. This service has complicated registration procedures.	157	39 (24.8)	89 (56.7)	29 (18.5)
4. There are too many rules and regulations regarding the use of this service.	153	41 (26.8)	86 (56.2)	26 (17.0)
5. I would prefer if the pharmacy gives me full supply rather than partial supply of my medications.	157	16 (10.2)	53 (33.8)	88 (56.1)
6. I'm confident that correct medications will be dispensed to me as all medicines are checked by pharmacists beforehand.	164	4 (2.4)	45 (27.4)	115 (70.1)
7. This service reduces my interaction with pharmacists when collecting medications.	156	15 (9.6)	68 (43.6)	73 (46.8)
8. This service helps to improve compliance as I am more likely to collect medications on time.	161	3 (1.9)	54 (33.5)	104 (64.6)

Number of responses varied for each item due to missing data

Table 4: Association between demographic characteristics and experience using VAS on likelihood to adopt the service

Demographic characteristics	Likelihood to adopt Scan & Collect				Likelihood to adopt Whatsapp & Collect			
	n	mean (SD)	t/F statistics	p-value	n	mean (SD)	t/F statistics	p-value
Gender[α]								
Male	73	3.79 (1.105)	0.06	0.95	73	3.85 (1.139)	0.53	0.60
Female	88	3.78 (1.077)			87	3.94 (1.093)		
Age group[β]								
18-29 years old	51	3.73 (0.981)	0.54	0.66	50	3.86 (0.990)	0.56	0.98
30-39 years old	41	3.93 (1.127)			41	3.95 (1.139)		
40-49 years old	38	3.92 (0.882)			38	3.92 (1.100)		
50 years old and above	28	3.68 (1.362)			28	3.93 (1.303)		
Current legacy VAS user[α]								
Yes	56	3.93 (0.871)	4.70	0.03	56	4.04 (0.934)	2.21	0.14
No	100	3.70 (1.193)			99	3.82 (1.207)		
Awareness of new VAS[α]								
Yes	75	3.88 (1.078)	0.26	0.61	75	4.07 (0.949)	6.19	0.01
No	85	3.71 (1.231)			84	3.75 (1.231)		

[α] Independent t-test
[β] One-way ANOVA

Table 5: Association between perceptions of new VAS on likelihood to adopt the service

Perceptions on new VAS	Likelihood to adopt Scan & Collect				Likelihood to adopt Whatsapp & Collect			
	n	mean (SD)	t/F statistics	p-value	n	mean (SD)	t/F statistics	p-value
Service saves queuing time [α]								
Neutral/disagree	34	3.38 (0.922)	2.79	0.01	34	3.26 (1.136)	4.31	< 0.01
Agree	125	3.94 (1.053)			124	4.11 (0.981)		
Service reduces number of visits to hospital [α]								
Neutral/disagree	35	3.31 (1.105)	2.96	0.01	34	3.41 (1.131)	2.94	< 0.01
Agree	123	3.92 (1.053)			123	4.03 (1.078)		
Service has complicated registration steps [β]								
Disagree	37	3.97 (1.040)	2.22	0.11	37	4.27 (0.838)	7.31	< 0.01
Neutral	88	3.84 (0.958)			88	3.98 (0.971)		
Agree	26	3.42 (1.361)			26	3.27 (1.457)		
Service has too many rules & regulations [β]								
Disagree	40	4.05 (1.154)	2.72	0.07	40	4.40 (0.810)	7.15	< 0.01
Neutral	83	3.78 (0.884)			83	3.79 (1.068)		
Agree	24	3.42 (1.381)			24	3.46 (1.285)		
Prefer pharmacy give full supply [α]								
Neutral/disagree	65	3.83 (0.961)	0.16	0.87	65	3.91 (1.011)	0.13	0.90
Agree	86	3.80 (1.136)			86	3.93 (1.135)		
Confident correct medicines dispensed [α]								
Neutral/disagree	47	3.49 (1.231)	2.59	0.01	47	3.77 (1.108)	1.25	0.21
Agree	111	3.96 (0.937)				4.00 (1.057)		
Service reduces interaction with pharmacist [α]								
Neutral/disagree	80	3.74 (1.016)	1.03	0.31	80	3.89 (1.019)	0.48	0.63
Agree	71	3.92 (1.118)			71	3.97 (1.146)		
Service helps improve my compliance [α]								
Neutral/disagree	54	3.69 (0.865)	1.22	0.22	54	3.72 (1.017)	1.76	0.08
Agree	102	3.90 (1.139)			101	4.04 (1.094)		

[α] Independent t-test. Respondents who answered neutral/disagree were combined so that normality assumption was satisfied.
[β] One-way ANOVA

Discussion

This study elucidates the awareness and perception regarding two new VAS variants, namely Scan and Collect and WhatsApp and Collect, which were recently implemented in Sarawak General Hospital to facilitate the collection of repeat medications among eligible patients not using the services. To the best of our knowledge, there was no known evaluation, or even description of these services in the literature.

The results showed that slightly less than half of the respondents surveyed were aware of either one or both services, which was not unexpected as the services were still at an early implementation phase. Nearly all patients gained awareness of the service from the pharmacy staff. Having a varied set of promotional methods is likely to improve the awareness level, such as via word of mouth by family members, friends and doctors, promotional banners and social media (10-11,13). In particular, modern telecommunication and electronic media, which enabled the creation of these VAS, should be exploited to facilitate their adoption (14). As the utilization of these VAS was found to be affected by the lack of understanding on how to use the services, this aspect should be emphasised. Simplifying the registration process as well as related regulations may improve the uptake of this service. Easy to understand diagrams or flow-charts on how to use both VAS should also be made available, as well as active demonstration or guidance for uninitiated patients. Once acquainted with the proper knowledge and know-hows to utilise the services, they are more likely to continue using them (15).

Findings of this study revealed that most respondents perceived the new VAS as time-saving and convenient. This was consistent with the intention of introducing VAS in Malaysia government facilities, and in concordance with other studies which reported positive customer satisfaction as the service reduced waiting time (4,8,13,16). Despite this, concerns on the perceived lack of interaction with pharmacy staff need to be addressed, as personalised services cannot be sacrificed for convenience in healthcare provision (17). For these two novel VAS, this concern is misplaced, as both services preserve the nature of the dispensing process with the added benefit of skipping queues and saving time. Collection of medicines is carried out at a dedicated counter, with the dispensing pharmacist available to provide patient-oriented care and counselling to patients or their carers, as well as answering queries. Besides, the intended patients for VAS are those who are already counselled and well-versed with their long-term medications (14). This needs to be clarified while promoting the services to avoid future misconceptions. Most respondents also agreed that these VAS help to improve compliance as they are more likely to refill prescriptions on time, suggesting that facilitation of repeat medication collection does encourage compliance towards medications (18).

Respondents who perceived the new VAS as time saving, convenient and easy to use were more likely to adopt them. This further consolidated the assertion that positive attitudes toward perceived advantages of VAS enticed patients to use them (14). Understanding customers' perspectives and behaviour is essential as it provides a clearer picture of their individual inclinations, which is vital to ensure the success of new pharmaceutical service implementation (15,17). This research is thus timely, providing data to advise further improvements on the design and promotion of both VAS to enhance their relevance to the intended population. Furthermore, at the time of writing, VAS are ideal means to ensure seamless supply of medications for patients during the Covid-19 pandemic, thus expansion of these services should be considered (19).

There were several limitations in the study. The questionnaires depended on customers' self-assessment of their perceptions, which could be subjected to recall bias, and filling the questionnaire in the presence of government pharmacists may result in acquiescence and social desirability biases. Based on the responses, the lack of parking spaces was the major barrier complicating medication collection, suggesting that drive-thru pharmacy, which had yet to be introduced in SGH during data collection, may be a more suitably tailored VAS option. Nevertheless, most of the issues identified in this study are fundamental information which can serve as references for future VAS implementation.

Conclusion

This study showed that nearly half of the respondents were aware of the new VAS implemented. Perceptions towards the service were mainly positive. Practically, the study will serve as reference for other outpatient or ambulatory pharmacy departments interested in implementing similar services, providing insights on patients' level of awareness, perception, receptiveness, likelihood to adopt as well as potential barriers faced. These findings will ideally provide help and support for future decision-making regarding improvements on service uptake, allowing for a more targeted approach to be taken towards optimising pharmacy service delivery.

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Conflict of Interest Statement
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