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Original Research

Satisfaction of patients receiving value added-services compared to traditional counter service for prescription refills in Malaysia

Boon-Tiang LAU [iD], Abdul-Rani NURUL-NADIAH-AUNI [iD], Siew-Yen NG [iD], Shuen-Nie WONG [iD].

Abstract

Background: Patients' satisfaction is the key parameter to measure the quality of healthcare services. Value added-services (VAS) were introduced to improve the quality of medication deliveries and to reduce the waiting time at outpatient pharmacy.
Objective: This study aimed to compare the satisfaction levels of patients receiving VAS and traditional counter service (TCS) for prescription refills in Port Dickson Hospital.
Methods: A single-center, cross-sectional study was conducted in the outpatient pharmacy department of Port Dickson Hospital from 1 March to 30 June 2017. Systematic sampling method was utilized to recruit subjects into the study, except mail pharmacy in which universal sampling method was used. Data collection was done via telephone interviews for both groups.
Results: There was 104 and 105 in TCS and VAS group respectively. The response rate was 99.5%. Overall, a significant higher total mean satisfaction score in VAS group was observed as compared to TCS group (43.39 versus 40.49, p=0.002). The same finding was observed after confounding factors were controlled (VAS=44.66, 95% CI 43.07:46.24 versus TCS=39.88, 95% CI 38.29:41.46; p<0.001). VAS respondents reported more satisfaction than TCS respondents for both general and technical aspects. Among the VAS offered, mail pharmacy service respondents showed highest total mean satisfaction score, but no significant different was seen between groups (p=0.064).
Conclusion: VAS respondents were generally more satisfied than TCS respondents for prescription refills. A longitudinal study is necessary to examine the impact of other dimensions and other types of VAS on patients' satisfaction levels.

Keywords

Patient Satisfaction; Community Pharmacy Services; Professional Practice; Pharmacies; Pharmacists; Cross-Sectional Studies; Malaysia

INTRODUCTION

Patients' satisfaction has been recognized as a crucial parameter for measuring the quality of healthcare services.[1-7] In the pharmacy profession, the welfare and health of patients have always been and will continue to be the primary concern for pharmacists.

Government-subsidized health care facilities in Malaysia warrants affordable health care services for the nations, which incurs reasonable treatment charges for both standard and specialist care.[8] This makes high patient volumes and long waiting time a norm in these settings. Conventionally, patients are directed to the outpatient pharmacy counter with valid prescriptions to collect their medications after receiving consultations from their respective disciplines. At the outpatient pharmacy department, patients are given queue ticket and wait for their turn to get medications dispensed via queuing system.[9] Studies showed that patients reported high dissatisfaction with the time spent to collect medications.[10-14] Long waiting time had been reported profoundly affecting patients' perceptions of the pharmacy service quality, which in turn has an impact on their treatment satisfaction and outcomes.[3,9,15] This was supported by a cross-sectional survey conducted by Sa'ed *et al.*[16], which found that low treatment satisfaction led to poor treatment adherence.

Value added services (VAS) were introduced by Malaysia pharmacy service division to improve the quality of medication deliveries for refill prescriptions.[17] Patients can decide their preferred VAS, namely integrated drug dispensing system, appointment card service, drive-through pharmacy service, mail pharmacy service, short message service-and-collect service, call-and-collect service, email-and-collect service, fax-and-collect service, Locker4U, and others.[18] Thus far, there are still limited studies done regarding the impact or outcome of VAS. One study evaluated the satisfaction of patients with TCS versus VAS in a tertiary hospital[19], while another recent study evaluated the impact of VAS on ambulatory waiting time.[20] Both studies reported positive outcomes with VAS over TCS. Nevertheless, VAS offered by these two hospitals were slightly different and there was no recent study evaluating the satisfaction of patients utilized integrated drug dispensing system, mail pharmacy service, and appointment card service.

Hence, this study aimed to compare satisfaction of patients receiving VAS and TCS for prescription refills in the

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outpatient pharmacy department of Port Dickson Hospital. The VAS studied included integrated drug dispensing system, mail pharmacy service, and appointment card service.

METHODS

Study Design

This was a single-centered, cross-sectional study conducted in the outpatient pharmacy department of Port Dickson Hospital in Malaysia over a period of three months, from 1 March to 30 June 2017. Registration with Malaysia National Medical Research Registry (NMRR-16-2651-31387) was done and approval by Medical Research and Ethics Committee (KKM/NIHSEC/P17-746) was obtained prior to the start of the study.

Study Subjects

The target population was the individual patient who collected medications over the outpatient pharmacy counter in this district hospital between 1 October 2016 and 31 December 2016. Patients aged 18 years and above who had at least one prescription refills in the past 6 months, and patients who understood Malay or English language met the inclusion criteria. Participants retained the right to withdraw from the study at any point of time during the research period.

This study was powered with a sample size to detect a mean score difference of 4.6 (standard deviation=10.69) between TCS and VAS.[19] From PS Power and Sample Size Calculation Program[21], 86 respondents were required for both TCS and VAS groups, respectively (ratio 1:1), to obtain 80% power and 0.05 type 1 error level. A total of 105 respondents were required for each group after accounted for 20% dropout rate.

Patients who received TCS and VAS were arranged in the chronological order according to the time and date they received their respective services. For mail pharmacy service arm, universal sampling method was used due to its limited population, whereby all patients who received this service were recruited as study subjects. The remaining VAS study subjects were then identified via systematic sampling method, in which every third patients receiving integrated drug dispensing system and appointment card services were recruited until a total number of 105 VAS study subjects was met. This was done by initially enrolling study subjects into the integrated drug dispensing system group (due to its smaller sample size), followed by recruiting study subjects into the appointment card group. On the other hand, systematic sampling method was utilized to recruit every third study subjects into the TCS group until a total of 105 were met.

Data Collection

Pre-set data collection form/questionnaire was developed for the interview sessions with patients. The questionnaire was adapted from Chan et al.[19], with permission granted by the corresponding author Chan HK and colleagues in their study titled 'Satisfaction with traditional counter versus value-added services for prescription claims in a Malaysian Tertiary Hospital', prior to the conduct of the current study.

The questionnaire included patients' demographic data (i.e. age, sex, race, educational level, employment, income, number of morbidities, and number of medication), and ten statements regarding their satisfaction level towards the TCS or VAS they received previously. Telephone interviews with the patients were conducted either in Malay or English language by two registered pharmacists during office hours. Verbal consent was obtained from every respondent prior to the start of the interview session. If eligible respondents refused to give their consent or would like to stop the interview sessions, the conversations would be terminated immediately.

Statistical Analysis

Data were analyzed using IBM SPSS Statistics version 24. Descriptive statistics were presented either as continuous data with means and standard deviations or as categorical data with frequencies and percentages. The baseline demographic data of respondents were compared by using either the independent t-test for continuous data (i.e. age, number of morbidity, and number of medication) or Pearson's Chi-square test for categorical data (i.e. sex, race, educational level, and employment). There were five individual statements in general aspects and five individual statements in technical aspects of the questionnaire. Each statement was scored on a five-point Likert-scale, namely 1 (strongly disagree), 2 (disagree), 3 (uncertain), 4 (agree), and 5 (strongly agree). Hence, total satisfaction scores could range from 10 to 50. The negative statement (the fifth statement) was reversed in order to be analyzed with other statements. Initial comparison of mean satisfaction scores between VAS and TCS groups were computed with the independent t-test. Further analysis with ANCOVA was performed to compare mean satisfaction scores between these two groups. Evaluations of mean satisfaction scores among the three types of VAS were performed with Kruskal-Wallis test. A confidence interval of 95% was utilized and results are statistically significant when the p-value was <0.05 (two-tailed).

RESULTS

There were 209 out of 210 respondents completed the interview sessions with the researchers, yielding 99.5% response rate. There was only one TCS respondent had trouble understanding Malay or English language. Data from that respondent was excluded from statistical analysis. The demographic data of respondents are presented in Table 1.

The Cronbach's alpha values for the general aspects domain, technical aspects domain, and the whole tool were 0.961, 0.836, and 0.947 respectively. The majority of the respondents (86.2%) scored a mean total satisfaction score of 31 or more out of 50 regardless of service types. Overall, 93 (89.4%) TCS respondents and 101 (96.2%) VAS respondents were satisfied with the services they received from the outpatient pharmacy department (defined as having mean total satisfaction scores of 31 and above). The mean satisfaction scores of TCS and VAS groups were compared and summarized in Table 2. VAS group showed statistically significant higher total mean satisfaction score compared to TCS (p=0.002). After adjusted for demographic variables (i.e. age, sex, race, educational level,

Table 1. Demographic data of respondents			
Variables (N=209)	TCS (n=104)	VAS (n=105)	p-value
Age, n (SD)	55.63 (15.44)	61.87 (13.40)	0.002[a]
Sex, n (%)			0.060[b]
Male	64 (55.7)	51 (44.3)	
Female	40 (42.6)	54 (57.4)	
Race, n (%)			0.012[b]
Malay	63 (60.0)	42 (40.0)	
Chinese	21 (38.9)	33 (61.1)	
Indian	20 (40.0)	30 (60.0)	
Educational level, n (%)			0.186[b]
No formal education/Primary	28 (43.1%)	37 (56.9%)	
Secondary	47 (49.0%)	49 (51.0%)	
Tertiary	29 (60.4%)	19 (39.6%)	
Employment, n (%)			0.054[b]
Self-employed	13 (44.8%)	16 (55.2%)	
Employee	31 (67.4%)	15 (32.6%)	
Pensioner	37 (43.0%)	49 (57.0%)	
Unemployed	23 (47.9%)	25 (52.1%)	
Income, n (%)			0.352[b]
Less than MYR1,000	56 (47.1%)	63 (52.9%)	
MYR1,001-MYR3,000	38 (50.7%)	37 (49.3%)	
More than MYR3,000	10 (66.7%)	5 (33.3%)	
Number of morbidity, n (SD)	1.52 (0.65)	1.90 (0.87)	<0.001[a]
Number of medication, n (SD)	3.62 (1.76)	4.73 (2.32)	<0.001[a]
[a]p-value of independent t-test.			
[b]p-value of Pearson's Chi-Square test.			
SD=standard deviation; TCS=traditional counter service; VAS=value added-services			

employment, income, number of morbidity, and number of medication), VAS respondents were still statistically more satisfied than TCS respondents, as reflected via mean satisfaction score in general aspects (VAS=22.03, 95% CI 20.98:23.07 versus TCS=18.93, 95% CI 17.89:19.98; p<0.001), technical aspects (VAS=22.63, 95% CI 22.03:23.23 versus TCS=20.94, 95% CI 20.33:21.54; p<0.001), as well as in total mean satisfaction score (VAS=44.66, 95% CI 43.07:46.24 versus TCS=39.88, 95% CI 38.29:41.46; p<0.001).

Table 3 shows the comparisons of satisfaction scores among VAS respondents for three different types of services. All integrated drug dispensing system respondents were satisfied with the amount of money they spent for the service compared to appointment card and mail pharmacy respondents (p=0.005). However, integrated drug

dispensing system respondents also showed least satisfaction level regarding the time they needed to spend to get the medications compared to the other two VAS respondents (p=0.046).

DISCUSSION

This study was conducted to evaluate and compare the satisfaction of patients receiving TCS versus VAS. VAS are novel services introduced to improve pharmacy efficiency in delivering medications to patients.[17] The tool used to assess respondents' satisfaction had internal consistency coefficients in the range of 0.836 to 0.961, which were considered as desirable by Numally.[22]

Overall, TCS respondents demonstrated more dissatisfaction than those receiving VAS. This was

Table 2. Comparisons of satisfaction scores between traditional counter service and value added-services respondents.				
Item	Mean satisfaction score		Mean difference (95% CI)	p-value[a]
	TCS (n=104)	VAS (n=105)		
General aspects				
1	3.89	4.27	-0.37 (-0.61, -0.14)	0.002
2	3.89	4.21	-0.32 (-0.56, -0.07)	0.012
3	3.69	4.25	-0.56 (-0.83, -0.28)	<0.001
4	3.78	4.07	-0.29 (-0.57, -0.00)	0.048
10	3.97	4.38	-0.41 (-0.59, -0.23)	<0.001
Subtotal	19.23	21.17	-1.94 (-3.08, -0.80)	0.001
Technical aspects				
5	4.89	4.95	-0.06 (-0.15, 0.03)	0.205
6	4.16	4.41	-0.25 (-0.40, -0.10)	0.002
7	3.90	4.09	-0.18 (-0.45, 0.09)	0.188
8	4.15	4.37	-0.22 (-0.38, -0.06)	0.007
9	4.17	4.39	-0.22 (-0.36, -0.08)	0.002
Subtotal	21.27	22.21	-0.90 (-1.57, -0.23)	0.008
Total	40.49	43.39	-2.81 (-4.56, -1.05)	0.002
[a]p-value <0.05 is considered statistically significant (independent t-test).				
CI=confidence interval; SD=standard deviation; TCS=traditional counter service; VAS=value added-services.				

Table 3. Comparisons of satisfaction scores among value added-services respondents				
Item	**Mean satisfaction score**		**Integrated drug dispensing system (n=41)**	**p-value[a]**
	Appointment card (n=53)	**Mail pharmacy (n=11)**		
General aspects				
1	4.34	4.64	4.07	0.100
2	4.25	4.55	4.07	0.207
3	4.34	4.64	4.02	0.046
4	3.98	4.64	4.02	0.178
10	4.38	4.64	4.32	0.161
Subtotal	21.28	23.09	20.51	0.213
Technical aspects				
5	4.98	4.64	5.00	0.005
6	4.43	4.64	4.32	0.131
7	3.96	4.64	4.10	0.186
8	4.45	4.64	4.20	0.073
9	4.42	4.64	4.32	0.161
Subtotal	22.24	23.20	21.94	0.074
Total	43.52	46.29	42.45	0.064
[a]p-value <0.05 is considered statistically significant (Kruskal-Wallis test).				

translated to a lower total mean satisfaction score especially in the general aspects. The mean satisfaction scores of the general and technical aspects were significantly higher in VAS group as well. These findings were different from a previous study conducted by Chan et al.[19], in which the VAS respondents showed significantly higher mean satisfaction score in the general aspects only. Of note, VAS studied in the former research involved mail pharmacy, call-and-collect, and drive-through pharmacy services, while the current one involved appointment card service, mail pharmacy, and integrated drug dispensing system. These two health care centers offered different VAS and patients might select VAS according to their preferences, subsequently affecting their satisfaction levels.

In a study performed at the University of Southern California, Los Angeles, United States of America, the overall satisfaction of patients with the pharmaceutical services was found to be strongly linked to their satisfaction with the waiting time.[23] This was supported by the current study, which showed respondents who used TCS demonstrated the lowest mean satisfaction score for the time they spent to collect medications over the pharmacy counter. This finding was also in-parallel with other studies, which reported a negative correlation between waiting time and satisfaction level.[4,10-14] During normal operating hours, pharmacist received a high amount of prescriptions over the counter every day. Long preparation time is required from the point when a prescription is being received, as it will be subsequently subjected to screening, filling, labeling, counter-checking, and lastly to the dispensing counter. Even though most of the prescriptions can be dispensed within the designated 30-minutes duration, patients have to wait at the pharmacy for this whole process to complete prior to receiving their respective medications. In contrary, medications in VAS are prepared in advance and ready to be dispensed according to the types of services, and thus reducing the amount of time spent in the pharmacy. The introduction of VAS was proven to be effective in reducing patient waiting time over the pharmacy counter. As reported by Loh et al.[20], the average waiting time of TCS was reduced significantly before versus after VAS promotion program (21.2 minutes; SD=7.1 vs 17.7 minutes; SD=12.9; p=0.033).

Both TCS and VAS groups showed higher mean satisfaction score for technical aspects and this was in-line with a study conducted by Chan et al.[19] However, it is noteworthy that both groups had the least satisfaction with the correct number of medications they received. This could be due to the fact that data collection was conducted during the period when the level of medication stock, especially antihypertensive and antidiabetic agents, was at stake. This was consistent with the finding by Abdosh[10] who reported that the availability of drugs was closely related to the overall satisfaction. Despite the problem with drug accessibility, respondents in the current study still felt that VAS saved their time and made it easier for them to get their medications refilled compared to the TCS. Nonetheless, additional preventive measures and efforts should be taken in order to ensure patients able to get sufficient medications refill irrespective of the types of services they received. Inevitable frequent visits to the pharmacy for medication refills might result in mental and physical stress to the patient and subsequently lead to a poorer quality of life. However, this is beyond the scope of the current study, and the causal relationship can be explored in the future.

In VAS group, particularly appointment card service, the lowest mean satisfaction score in the technical aspects was the correct number of medications respondents received from that service. Interestingly, the same VAS respondents claimed that the service did not make their life easier. Frequent visits to the pharmacy counter for partial medications supply due to stock shortage might be accounted for these results. Nevertheless, the majority of the VAS respondents agreed that they did not spend much money in getting their medications refilled. This is especially true for respondents who experienced integrated drug dispensing system, as it enables patients to collect their medications from the nearest government-subsidized health care facilities without hassle to travel afar. Contradictory, mail pharmacy respondents less agreed on the expenditure they were required to pay for the service. This is because some amount of payment is compulsory for mail pharmacy courier service, yet no payment required for appointment card and integrated drug dispensing system. Among three different VASs, integrated drug dispensing system respondents were found to have lower mean

satisfaction score in both general aspects and technical aspects compared to the other two pharmacy services. While patients using this service to collect their medications at the nearest facility without additional charges, they still need to receive their medications via traditional counter services at the appointed facility. Different finding was observed from a former study by Chan et al.[19], in which mail pharmacy service scored the lowest for both general and technical aspects particularly the expenditure for the service. This finding must be interpreted with caution as there was limited sample size for mail pharmacy service in the former and current studies.

Most of the studies reported a negative association between the number of medications received by the patients and their satisfaction with the pharmacy services.[19,24,25] It was hypothesized that patients with higher number of medications tend to have lower health status[24], and this was linked to lower levels of satisfaction with medical care.[26,27] Monthly income was also found to be correlated with satisfaction levels. Patients with higher socioeconomic status tend to be easily satisfied with the pharmacy services.[28] Other possible predictors for patients' satisfaction included convenience of prescription filling, self-assessed positive health status, communication between provider and patient and the view of prescription drugs as being inexpensive.[29] Factors that might predict the use of VAS against TCS were not explored in this study because pharmacists might have selected patients into the service with which they thought patients were most satisfied. Elderly, patients with more comorbidities and those with a higher number of medications were more likely to be selected for appointment card services as it enabled pharmacy staffs to get their medications refilled and counter checked beforehand, therefore reduce the waiting time via TCS. On the other hand, patients who sought medical treatment in this hospital but stay afar might have chosen integrated drug dispensing system as it enables them to collect medications at their conveniences.

Study Limitations

Despite the strengths showed, there were some limitations that should be considered. Firstly, the current study was conducted in a district hospital setting with fewer patient populations. Although the results observed were similar to that of the former study, generalization to other health care facilities might not be appropriate without taking into consideration of patients from different settings, socio-demographic background, and clinical characteristics. Secondly, systematic sampling and universal sampling methods were used for study subject selection without proper randomization. This was reflected through imbalanced numbers of respondents in different VAS groups, with the least numbers of respondents from the mail pharmacy service. Self-selection bias could also be observed in the current study, as elderly, patients with more comorbidities, and those with higher numbers of medications were recruited in the VAS groups. Thirdly, patients' demographic and satisfaction data were collected via telephone interviews, thus potentially involved self-interest bias, recall bias, and other confounding factors. Lastly, the questionnaires might be restructured to explore the impact of other dimensions towards patients' satisfaction, such as self-assessed health status, acceptance towards new services, and perceptions towards medications.

CONCLUSIONS

This study revealed that respondents were generally more satisfied with VAS compared to TCS for prescription refills. The same finding could be observed after confounding factors were controlled. Among three VASs provided, mail pharmacy was the most satisfied service, followed by appointment card service and integrated drug dispensing system. Due to a limited number of respondents in certain VAS group, the result should be interpreted with caution. A longitudinal study is necessary to examine the impact of other dimensions and other types of VAS on patients' satisfaction levels.

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CONFLICT OF INTEREST

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