A Qualitative Exploration of Facilitators and Barriers towards Refill Prescription via Pharmacy Appointment Card System (PACS) among Outpatients in Hospital Tuanku Ampuan Najihah (HTAN)

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Abstract

Introduction: Value-added Services (VAS) were adopted and implemented by the Ministry of Health Malaysia facilities to shorten medication refills waiting time in the pharmacies. The Pharmacy Appointment Card System (PACS) was one of the VAS offered by Hospital Tuanku Ampuan Najihah (HTAN). Understanding patient's perception towards PACS can help to further optimise the service.

Objective: This study aimed to explore the facilitators and barriers of outpatients towards utilising the PACS service for prescription refills.

Method: Face to face, semi-structured interviews with 18 outpatients who were using PACS were conducted. Respondents were asked about their views, perceived advantages and disadvantages of PACS, and facilitators and barriers in utilising PACS. Thematic content analysis was used to identify insights from the gathered data.

Results: Identified themes included 'Attitude towards using PACS', 'Knowledge and awareness' and 'Expectations'. Although there were room for improvement in terms of efficiency, respondents would still like to continue using PACS, citing it as being age-friendly, convenient and stress reducing. Respondents with logistical issues claimed that logistics remained a barrier to prescription refills, despite being subscribed to PACS. Low level of awareness on the service and lack of explanation could have resulted in patients' confusion in the prescription refill process using PACS. Expectations on PACS included the allocation of a dedicated PACS counter, a personal reminder message and the presence of highly trained staffs.

Conclusion: Respondents were satisfied with PACS. Improvements in efficiency and service awareness could improve the adoption of PACS among patients.

Keywords: value-added services, pharmacy appointment card, outpatient pharmacy, facilitators, barriers

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Introduction

Value added services (VAS) refers to services provided as supplemental services that support core product of an organization. VAS for medicines dispensing have been implemented in the some countries such as Taiwan, Australia and the United States of America. These include drive-through pharmacy service, one-stop-shop, forward dispensing, e-prescribing, chronic illness card, prescription reminder systems, pick up and home delivery services and mail order pharmacy services (1-6). These services have been proven to greatly enhance patient's satisfaction by improving waiting time, total cost, and the efficiency of service.

In 2011, Ministry of Health Malaysia (MOH) aimed to solve medication non-compliance and wastage problems by implementing a policy in which the prescriptions would be refilled by monthly basis (7). However, this had resulted in the increased patient load and waiting time in the outpatient pharmacies. Since improving patient's waiting time affect their satisfaction of the service, patient's waiting time has

become a measurable performance indicator under MOH in which at least 95% of prescriptions must be filled and dispensed within 30 minutes (8). To reduce the waiting lines in pharmacy, the Pharmaceutical Services Programme (PSP), MOH introduced various pharmacy value added services such as Drive Through Pharmacy, Medicines by Post (UMP), Pharmacy Appointment of pharmacist irreplaceable in healthcare. The publics' satisfaction with the pharmacists' services is greatly affected by the environment they are served. There are multifactor that might affect the satisfaction towards the pharmacists' Card System (PACS), Locker4U, SMS and Collect (S&C), Email and Collect (E&C), Telephone and Collect (T&C), and Fax and Collect (F&C) (7-10).

In Hospital Tuanku Ampuan Najihah (HTAN) in the state of Negeri Sembilan, Malaysia, only PACS and UMP services are offered by its Pharmacy Department. The number of HTAN PACS users doubled from 2017 to 2019. In 2019, these users represent 70% of the total appointment system users in HTAN. Despite the availability of numerous studies detailing patient's satisfaction on VAS (1,7-8), there were limited studies regarding patient's perception specifically towards PACS. Since PACS was a popular VAS choice among patients refilling their prescriptions in HTAN, understanding patients' perceptions towards the service was important to provide crucial information to further optimise the delivery of PACS. Therefore, this study aimed to explore the facilitators and barriers of outpatients towards utilising the PACS service for prescription refills.

Method

This is a qualitative study designed to gain an understanding of the facilitators and barriers to refilling prescription via PACS among the outpatients in HTAN. A qualitative study designed was used as some information could be hidden or could not have been quantitatively discovered. This study was conducted from December 2019 to October 2020, in which data collection were from July 2020 until September 2020.

Malaysians, or their representatives, who refill prescription via PACS were approached for the study. Participants who have language barriers were excluded. Purposive sampling was chosen to identify participants with chronic diseases since this sampling method enables the researcher to gather precise and better insights out of a small specific interest group. The face-to-face interviews were conducted in the counselling room of HTAN's Outpatient Pharmacy. All interviewees were briefed about the study before the interviews and debriefed at the end of the session. Written consent was obtained from the respondents prior to the interview.

A semi-structured interview guide (Appendix) was adapted from a similar study conducted in Hawaii and Northern California (11). Probing questions were asked in between the conversations to clarify the meaning of responses and to gain further insights of the topic being discussed. The interview questions asked respondents about their views, perceived advantages and disadvantages of PACS compared to traditional counter service, and the facilitators and barriers towards utilising PACS. The guide was first piloted with two patients and then modifications were made to improve the clarity and length of the questions. The pilot data analysis showed that the interview questions were sufficient and appropriately phrased to answer research questions and to minimise validity threats. The data collected during pilot interviews were not included in the final data analysis.

The duration of interviews varied between 30 and 60 minutes. The process of selection of candidates and interview were continued until data saturation. Data saturation was achieved at the 17th interview, but the interviews were carried on until the 18th interview to ensure there were no emergence of new themes. All interviews were audio-recorded and transcribed verbatim by two researchers (NLMR and USMN) who were both fluent in English and Malay languages. They are the native speakers of the Malay language and have been proficiently using the English language for at least 7 years. Researchers minimise bias by taking notes about participant's comments and their own thoughts during the interview. Besides writing memos as soon as the interview ends, researchers also develop and constantly edit their subjectivity statement to engage reflexivity.

The rigor of the analysis was maintained by another two researchers, who checked all transcriptions against the original voice recordings. Data were coded, analysed, checked and clarified for data analysis and representation. Emerging themes served as important variables to differentiate facilitators and barriers towards PACS. Sticky notes were used for thematic analysis. Discrepancies were discussed, and a final decision was made after mutual agreement among the researchers.

The study was approved by the MOH Medical Research and Ethics Committee and registered with the National Medical Research Registry (NMRR) with the registration number NMRR-20-1113-54408.

Results

A total of 18 outpatients were recruited in this study. Table 1 summarised their demographic details. During the analysis of the responses, three major themes were identified. These include 'Attitude towards using PACS', 'Knowledge and awareness' and 'Expectations'. Figure 1 showed the Theory of Planned Behaviour (TPB) framework, which illustrated the emerged themes.

Table 1: Demographic details of respondents

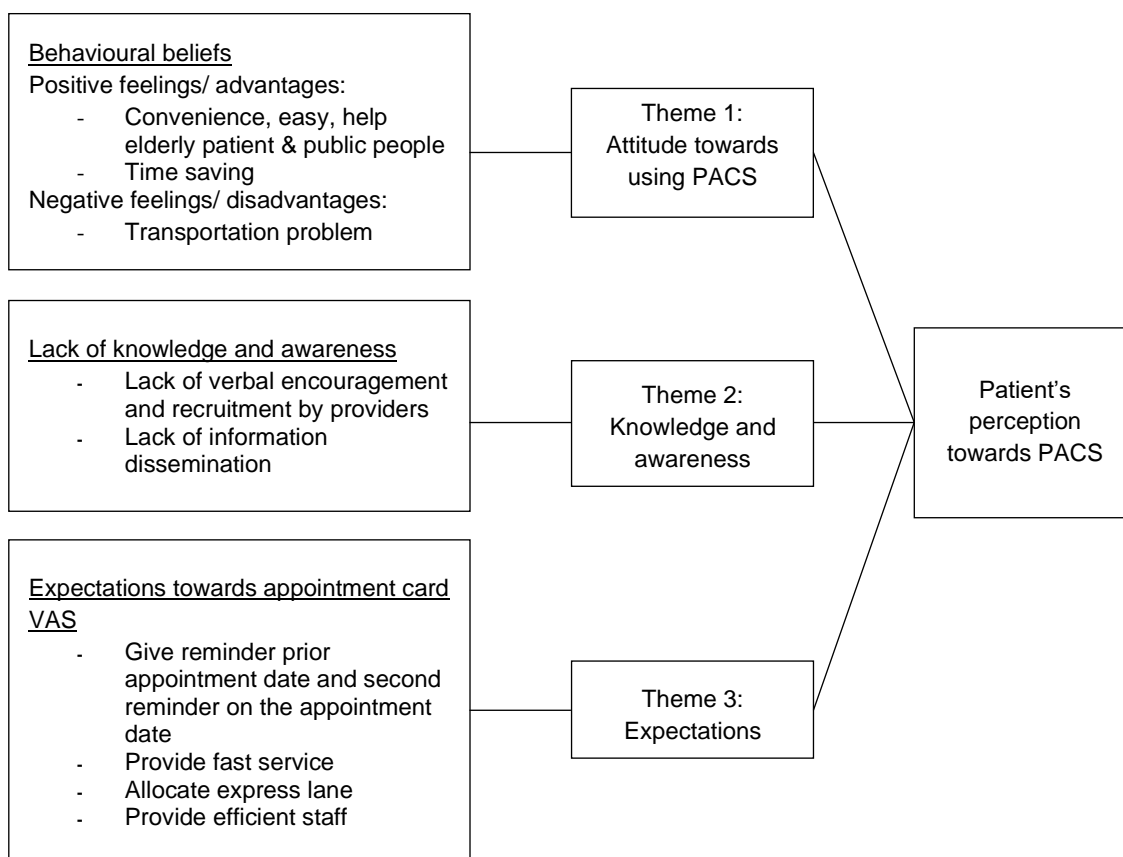| Variables	n	(%)
Gender		
Male	13	72.2
Female	5	27.8
Race		
Malay	11	61.1
Chinese	5	27.8
Indian	2	11.1

Figure 1: The extended theory of planned behaviour framework to understand patient's perception towards Pharmacy Appointment Card System (PACS)

Theme 1: Attitude towards using PACS
Convenience, age-friendly and time saving were the most common advantages that encouraged respondents to use PACS.

"Firstly…the advantage is…what we called it? Save time… from my observation…Secondly in term of the staffs, it ease the burden of the staffs because the medications…. they already prepared earlier." (R7)

"Because… when we come to pharmacy to collect the medications... since the medications had been prepared, so we don't have to wait for a longer period." (R11)

"Let's say we have that appointment card VAS, it will be easier. Such as, when we want to refill the medications, the date is there for us to refer." (R12)

"From my understanding, when we have the appointment card VAS, meaning that….the filling process is faster. It means that, when we come to collect the medications, they already prepared compared before using this service." (R17)

In addition, Respondent 2 explained that PACS were allocated for geriatrics and able to shorten waiting time for them while Respondent 16 was really appreciative of this service and told the interviewer that she believed that PACS was able to reduce patient's stress due to long waiting period.

Nevertheless, most of the respondents complained that they were not able to collect their medication refills according to the given dates. This was due to logistical issues as many of them did not have their own transport to go to collect their monthly medications.

"Yes, sometimes I did collect the medications later than the appointment date. I don't have a car to go to hospital… I go with my friend..." (R6)

Theme 2: Knowledge and awareness
Respondents were asked to describe their understanding and general views about PACS monthly medication refills. Some respondents claim that they did not understand this service. This decreased their compliance towards the timely medication collection. In addition, the lack of verbal encouragement and recruitment by the pharmacy staffs were highlighted by the respondents. When pharmacy staffs did not give a clear explanation about PACS, the patients may not understand what benefits they could gain from this service.

"Yes... the pharmacist gave it, simply gave the card to me." (R11)

"Yes… the staff said, this….need to keep it and when refill the medications next month can use this card... I don't know the advantages of this card…the staff did not tell me anything." (R8)

Besides that, the lack of communication between household members could reduce the appreciation towards PACS. This can be seen as some of the respondents claimed that they did not know anything about the service because they were not the ones who received the appointment cards. The respondents may not be the one who were physically present when the other family members received the appointment cards and had not told them about it. They just brought the prescription which had been attached with the appointment card without knowing it's function. The lack of knowledge and awareness about the benefits, procedures and type of VAS services could negatively affect the adoption outcome.

"My husband receive it at the first place…. I don't know anything about the card. (R16)

I don't know anything. My husband was with our child during receiving that appointment card VAS…suddenly I found that card." (R18)

A few respondents claimed that, it was their first experience collecting the medications using PACS. Due to the lack of explanation regarding the procedures, they were confused on how PACS was implemented and how to refer to the appointment date for drugs collection in the card.

> *"Like today, I collected the medications later than the actual appointment date because it was my first time using this card, I felt like quite awkward using it... other than because of forgot the date, busy of working cause me claimed my medications late." (R18)*

Theme 3: Expectations

There were several respondents who shared their opinions on possible service improvements. For example, the allocation of a sole express counter and lane dedicated for PACS patients only.

> *"If possible, please allocate an express lane…. Which give medications for express number only." (R15)*

Several respondents expected a reminder message because they always forget the next date for prescription refills. They cite age, busy with work and many other appointments as reasons for this request. Some of the respondents claimed that they have received a medication refill reminder in the past, but no longer received any lately. They hope that the next collection date reminder will be re-implemented.

> *"This service needs to be improved. Last time, about three days before the appointment date to collect the medications, the date was written on the mobile phone….they sent a message regarding the date to collect the medications. Nowadays…nowadays, they don't send the message anymore." (R12)*

> *"Yes…I only have problem regarding the date. Sometimes, they did not send the message, therefore I forgot to claim my medications. Because I have a lot of appointments… yes... I have a lot in my mind. Because, in a month, twice or thrice I need to send my child for his appointment, then my appointment, next my child's appointment back….. Thus, sometimes I forgot to collect my monthly medications since I still have them…. if the medications finished, then it triggered me to refer the card, then I noticed the date to collect the medications already passed." (R13)*

> *"The thing that can be improved is using SMS to remind the next collection date of monthly medications…. But need to use my phone number since my husband's phone number is rarely used." (R18)*

Suggested improvements toward this service also involved pharmacy staffs. Respondent 14 suggested that the screening counter staff need to be aware of express numbers and normal queue numbers should not be given instead. Some respondents expected to have more efficient pharmacy staffs as Respondent 1 complained that there was one time that the pharmacist misplaced his prescription and that situation consumed his time.

> *"I am telling the truth, there was one time, I already took this prescription slip and the pharmacist can misplace the slip. Then, I showed him my queue number and he went to find my prescription slip. I asked him how come it be like that." (R1)*

> *"I want to complaint that your service should be faster, your staffs… need to be monitored… this service looks like normal service." (R10)*

Medication refills during the peak hours can take a very long time despite having an appointment card. Many respondents expressed disappointment at this as service speed was improved only when there was are less queue in the waiting area. Hence, Respondent 2 felt that the objective of PACS to shorten waiting time was not successful.

> *"Like that brother said... it called as express service but it is just the same. Hmm…sometimes need to wait longer… Either express or normal service, they are same … still need to wait longer…" (R1)*

> *"It was about half an hour…. Urm… the longest waiting time, I thought about an hour." (R10)*

"Yes….till today, I felt the same. The waiting time still the same even after receiving the card….it is not too long like half an hour." (R13)

"Yes it is…sometimes, I got the medications late sometimes I got them faster. It depends on the quantity of patients at that time. If there are many patients, I got the medications late, if there are less patients, it will be faster." (R14)

Although expressing dissatisfaction with the quality of PACS service, most respondents would like to continue using the appointment card. This was due to the chance that they would able to get their medications faster. Respondents were hopeful for an improved system for the benefit of all appointment card holders.

Discussion

The themes attitude, knowledge and awareness and expectation emerged when this study tried to explore the facilitators and barriers towards using the Appointment Card VAS namely PACS. The perceived advantages of using PACS were easy, quick and elderly friendly. Similar results were shared by a group in Malaysia and Jordan, where they reported that VAS was expected to accelerate medicine collection time, alleviate queuing trouble, and ease the patients' experience as well improving patient satisfaction (1,12-14). Some of these studies also agreed that VAS provided a flexible way for the senior citizens to refill their prescriptions (12,14). A study conducted in Abu Dhabi demonstrated a decrease in the average waiting time for patients when a fast tract dispensing window was implemented (15). However, it was not feasible to directly compare the extent of improvement in waiting time between these studies due to the variations in dispensing workflow and study methods. Furthermore, the parameters used to measure patient waiting time differed among other studies. Nonetheless, our study findings provide valuable insights into how the introduction of VAS influenced patient waiting time for medication dispensing in our hospital. Although a specific lane currently exists for appointment card holders, due to the extremely high numbers of elderly patient, the benefit of quick refills has not been realised. Reengineering the prescription-filling process, as such mentioned by Chou et al. may reduce these patient's waiting time (16).

The disadvantages of using PACS perceived by interviewees are negative feelings towards using PACS. The lack of awareness and knowledge regarding the benefits and implementation of VAS impeded adoption. However, agreeing with Chou et al., we concur that, awareness is not the only factor that facilitates or hinders adoption (16). Shah et al. found a relationship between transportation and accessibility and the quality of health services (17). Patients living in rural areas and villages often face challenges and barriers when it comes to accessing transportation to reach the nearest healthcare centres. Our study also found that as some patients claimed that transportation was an issue since they do not own private vehicles to fetch their monthly medications. Elderly with mobility issues tend to prefer staying at home due to the increased risk of fall and injury when going out and walking alone in public. Lack of awareness or knowledge negatively affected the perception because patients would feel doubtful and lack of confidence about the new systems (18). Since many respondents did not know about the existence of VAS, the current recruitment and promotional activities should be reviewed to accurately target the expected population.

Expectations towards VAS including receiving reminders prior to medicine collection appointment dates, provide faster service, allocation of express lane, and availability of efficient staffs. Insufficient staffing of pharmacists can lead to a backlog of prescriptions awaiting dispensed (3). While it may seem intuitive that having more dispensing counters would reduce patient waiting time, a study found that an increased number of dispensing counters was actually associated with longer patient waiting time (7). This could be due to the interior layout of the outpatient pharmacy where pharmacy staff had to travel greater distances to dispense prescriptions when there were more operating counters. Additionally, a higher number of dispensing counters resulted in the dispersion of manpower across the outpatient pharmacy causing the pharmacists to spend more time on non-productive activities. Patient waiting time was also influenced by the volume of prescriptions and refill requests. The workload increased without a corresponding increase in pharmacy staff causing the outpatient pharmacy to exceed its capacity. To address this bottleneck, further research is needed to determine the ideal ratio of pharmacy technicians to prescriptions. Failure to address this issue will compromise patient care and contribute to overcrowding.

Self-report data may be susceptible to bias. However, it was acknowledged that this qualitative study, being exploratory in nature, served as an effective means to gather preliminary information. There is a possibility of selection bias since those who chose to refill their medications through PACS and agreed to participate in this study might have been more inclined to be adherent to their medications. In addition, those who did not attend to their appointment were not captured in this study. Recall bias could also undermine the quality of the data. Researcher bias might occur as there are two people conducting the interviews. Moreover, behavioural change does not always be determined by predictors of intention and a comprehensive large-scale study is required to validate these findings. This aspect also serves as a potential limitation of the current study.

Conclusion

The themes of attitude, knowledge and awareness, and expectations dominated patient's perception towards utilising PACS for medication refills. Although respondents were generally satisfied with PACS, improvements in efficiency and service awareness would further boost the adoption rate and satisfaction. These findings may serve as crucial variables of interest in future studies. Guideline to further improve patient-oriented services can be developed using the themes observed in this study.

Acknowledgement

Conflict of Interest statement

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Appendix

Interview Guide

1. How did you know about appointment card VAS? What do you understand about appointment card VAS?
   Bagaimanakah anda tahu tentang servis tambahan kad temu janji ini? Apakah yang anda faham mengenai servis ini?

2. How would you describe your recent experience refilling a prescription via this appointment card VAS? Did you encounter any problem by using this service?
   Bolehkah anda kongsikan pengalaman terkini menggunakan servis ini? Pernahkah anda menghadapi sebarang masalah menggunakan servis ini?

3. What are the advantages and disadvantages using appointment card VAS?
   Apakah kelebihan dan kekurangan servis tambahan kad temu janji ini?

4. Have you never or late to take appointment card VAS medicines? If YES, can you share with us the reasons?
   Pernahkah anda tidak atau terlambat mengambil ubat melalui servis ini? Jika YA, bolehkah anda kongsikan sebab-sebabnya?

5. Once a year VAS prescription slip expires, what would be the reason(s) for renewing of or what would be the reason(s) not to renew?
   Setelah preskripsi VAS anda telah tamat tempoh, apakah sebab-sebab untuk anda memperbaharui-nya atau sebaliknya?

6. Do you use both appointment card VAS and the normal service? Why do you use both services or a part of them?
   Adakah anda menggunakan kedua-dua servis tambahan kad temu janji ini dan pengambilan ubat di kaunter secara biasa? Boleh kongsikan mengapa menggunakan kedu-duanya sekali atau hanya salah satu?

7. Have you encounter any difficulties in refilling a prescription at the normal counter services? Can you share the problem(s)?
   Pernahkah anda mengalami sebarang masalah semasa mengambil ubat di kaunter secara biasa? Boleh kongsikan masalah itu?

8. Overall, on a scale from 1 to 10 – 1 being "Very unsatisfactory" and 10 being "Very satisfactory", can you please rate this appointment card VAS service according to the level of convenience that you feel?
   Secara keseluruhannya, menggunakan skala 1 hingga 10, 1 bermaksud "Sangat tidak memuaskan" dan 10 bermaksud "sangat memuaskan", bolehkah anda menilai servis ini mengikut tahap kepuasan anda?

9. How do you think appointment card VAS service can be further improved?
   Bagaimanakah servis ini dapat ditingkatkan?

10. How do you think the effect of appointment card VAS service on your medication compliance?
    Bagaimana servis ini mengimpak tahap kepatuhan anda terhadap ubat?

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11. Any additional comments?
    Ada apa-apa komen tambahan?