Understanding and expectation towards pharmaceutical care among patients, caregivers and pharmacy service providers: a qualitative study

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ABSTRACT

Background Over the past decades, the pharmacist's role has changed from being 'compounders and dispensers' to one of 'medication therapy manager' providing pharmaceutical care (PC). The transformation of pharmacy practice and its benefits, however, seem to be poorly understood by patients and caregivers (consumers) even in advanced health systems.

Objective This study aims to assess the comprehension of consumers in Singapore towards PC and expectations on the scope of pharmacy services today.

Methods This qualitative study was conducted among 51 consumers and pharmacy staff (pharmacy providers) in a tertiary acute care hospital in Singapore through 45 semi-structured interviews. Participants were sampled from inpatient and outpatient settings. Data were transcribed, coded and analysed by thematic analysis.

Results Thirteen pharmacy technicians, 14 pharmacists and 14 out of 24 patients and caregivers, agreed to be interviewed. Reasons such as minimal English and unsure of pharmacy services were cited for declining interviews. From the interviews, the majority of the consumers did not understand the differences in roles between pharmacists and doctors beyond the basics of doctors diagnosing and pharmacists dispensing. Eighteen (75%) consumers remain unaware that pharmacists are trained to provide additional services such as medication enquiry services and optimisation of drug therapy. In addition, consumer expectations have expanded beyond transactional encounters, with 15 (63%) consumers expecting personalised services. Five (19%) pharmacy providers also expect the use of automation to boost efficiency and improve patients' convenience. Seven (15%) of the participants hope to see better prediction with analytics and, therefore, pre-emptive management of medication errors.

Conclusions There is an incomplete understanding regarding PC and the roles of pharmacy providers among healthcare consumers today. Beyond basic service provisions, expectations of pharmacy practice have become more experience-oriented. Policy changes that expand pharmacists' roles must be matched with corresponding publicity and education efforts to encourage service utilisation.

problems to produce therapeutic outcomes for the patient.

Over the past decades, the pharmacist's role has changed from that of compounder and dispenser to one of 'medication therapy manager'.² Apart from traditional technical roles in maintaining institution formulary and supplying medications in a timely manner, the scope of pharmacy practice has evolved to include provision of patient-centric care with extended clinical functions that include providing medication information and optimising medication therapy,² making up a significant portion of clinical pharmacy practice and PC today. Two Cochrane Reviews have shown that PC with pharmacist-provided services resulted in significantly improved care quality, clinical outcomes and prescribing outcomes.^{3 4} These findings are especially important as many health systems worldwide are increasingly confronted with rising prevalence of chronic diseases requiring pharmaceutical interventions that are usually complex in nature.^{5 6}

The transformation of pharmacy practice and its benefits, however, seem to be poorly understood by patients and caregivers (consumers) even in advanced health systems.^{7 8} There were significant differing views between patients and pharmacists on their roles in PC, including fundamental roles in medication management.⁷ Some patients failed to recognise that pharmacists' roles include sharing of medication information, and forming an active patient-pharmacist relationship. Incomplete understanding of PC, possibly arising from poor health literacy, may result in consumers being unable to reap the full benefits of PC.⁹ Despite recognition of PC being beneficial, participants from many studies could not agree on the components constituting PC.⁸ It is only until recently that marked improvement in comprehensive understanding of PC was observed in the United States, and patients' expectation of pharmacy services has changed to include developing the patient-pharmacist relationship and ensuring medication safety.^{10 11} Similarly in other countries, patients today increasingly associate PC quality with its access and provision of safe and effective care as awareness grows.^{12 13}

Traditionally, pharmacy services in Singapore had only included dispensing and supplying of medications. A 1997 survey showed that patients viewed quality pharmacy services experientially based on short waiting time, accurate dispensing and reasonable pricing. Many of the important aspects of PC as defined today, such as

INTRODUCTION

Pharmaceutical care (PC) today is defined as, 'The responsible provision of drug therapy for the purpose of achieving outcomes that improve a patient's quality of life.'¹ This includes pharmacists cooperating with other healthcare professionals to recognise, resolve and prevent medication-related

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medication counselling and therapeutic drug monitoring, were notably absent from public expectations.¹⁴ With the change in patients' needs and pharmacists' roles in Singapore over the past decades, it remains unclear if our patients today are aware of the new roles of pharmacists in providing PC, and if their expectations of PC have evolved in similar ways as observed overseas.

As such, we conducted this study to assess the comprehension among healthcare consumers in Singapore on PC. The secondary objective of this study was to identify differences in perceptions and understanding towards PC between consumers and pharmacy staff (pharmacy providers). Findings from this study will allow us to identify misconceptions and better account for public expectations when implementing improvement measures to existing pharmacy services.

METHODS

Context of study

Singapore's healthcare system is accessible through a wide network of primary, acute and step-down care providers. Patients are free to choose their providers, either in the government-subsidised public sector or private sector for all levels of care, resulting in a relatively porous healthcare system where patients are exposed to, and have knowledge of, healthcare in the various settings. In the community, most general practitioners (GP) train their clinic assistants to dispense. Hence, community pharmacy mainly consists of over-the-counter sales and prescriptions are usually dispensed only if medications are unavailable at the clinic. In the hospital pharmacy, pharmacy services can be divided into two main sections – inpatient and outpatient services, where their main roles are to supply medications in a timely manner and ensure that medications are appropriately ordered for the patients.

Study design and participants

The qualitative study was conducted in Alexandra Hospital, Sengkang Health, a 300-bed acute care hospital in Singapore from 19 August 2016 to 2 January 2017. Participants from various care settings (inpatient and outpatient) and specialties (medical and surgical), were recruited by purposive convenience sampling until data saturation.¹⁵ Minimum sample size for initial analysis was 20 and recruitment was stopped after three consecutive interviews were conducted without new ideas emerging. Participant recruitment criteria included: consumers above 21 years' old, who have had contact with pharmacists on at least one occasion; staff members of the hospital's pharmacy department; and able to communicate in English. Participants were excluded if they withdrew at any point of the data collection, or were unable or unwilling to give verbal consent for participation. Written informed consent was waived with the condition of verbal consent for participation. SingHealth Centralised Institutional Review Board approved the study protocol (ref no. 2016/2690).

All members of the study team were pharmacists working in the hospital with relevant training in research methodologies and qualitative research. Consolidated criteria for reporting qualitative research (COREQ) checklist for the study can be found in online supplementary Appendix A.

Data collection and analysis

Data collection was done through semi-structured interviews (SSIs). Topic guides tailored for consumers and pharmacy providers were developed, pilot-tested and refined by the study's

Table 1 Characteristics of participants

Characteristic	Patients/caregivers (n=24)	Pharmacy technicians (n=13)	Pharmacists (n=14)
Gender, no. (%)			
Male	11 (45.8)	39 (23.1)	12 (85.7)
Female	13 (54.2)	10 (76.9)	2 (14.3)
Age, years (%)			
20–30	3 (12.5)	13 (100)	10 (71.4)
31–40	1 (4.1)	0 (0)	3 (21.4)
41–50	4 (16.6)	0 (0)	1 (7.14)
51–60	9 (37.5)	0 (0)	0 (0)
>60	7 (29.2)	0 (0)	0 (0)
Highest education level, no. (%)			
Secondary and below	9 (37.5)	0 (0)	0 (0)
Post-secondary	6 (25)	6 (46.2)	0 (0)
University and above	9 (37.5)	7 (53.8)	14 (100)
Care settings, no. (%)			
Inpatient	16 (66.7)	7 (53.8)	9 (64.2)
Outpatient	8 (33.3)	6 (46.2)	5 (35.7)
*Place of medication collection, no. (%)		NA	NA
General practitioners	10 (22.7)		
Company doctors	3 (6.8)		
Community pharmacies	4 (9.1)		
Polyclinics	15 (34.1)		
Hospitals	12 (27.3)		
Length of experience in healthcare, years (median, range)	NA	6 (1.5–10)	3.5 (0.1–18)

*Participant may visit more than one place to collect medication.

investigators. Covered domains included: understanding the concept of pharmaceutical care; current perceptions of the roles of pharmacists; and future expectations and evolution of pharmacy practice.

Verbal consent was obtained and each SSI, ranging from 15 to 30 min, was conducted in a quiet area. Two co-investigators performed the interviews and all sessions were audio-recorded.

Interviews were transcribed verbatim by the interviewers and analysed by thematic analysis to systematically analyse the data obtained. Patterned responses and meanings were identified manually and initial codes were generated following data familiarisation. Cohering codes were then collapsed under the same theme while clear and identifiable distinctions were made between themes by the research team. Similar themes were subsequently charted under a main concept.¹⁶ Any conflicts in identifying themes were reviewed again by the team before a common consensus was obtained. Data management and coding were performed using QSR International's NVivo Version 10.

RESULTS

A total of 45 SSIs were performed. The sample included 24 patients and caregivers, 13 pharmacy technicians (PTs) and 14 pharmacists. A total of 10 patients and caregivers declined to be interviewed, with reasons cited as minimal English (n=5), rushed for time (n=1), uncomfortable with interview (n=1) and unsure about pharmacy services (n=3). No pharmacy provider declined to be interviewed. Participant demographic characteristics are summarised in [table 1](#).

Understanding towards pharmaceutical care and roles of pharmacy providers

General understanding about PC

Even though all 24 (100%) consumers have not heard of PC, the concept of PC in ensuring safe and effective use of medicines to achieve therapeutic outcomes was understood:

ensure... restricted medications are... being sold to us properly... that we know what we are getting... the patients don't misuse drugs (14BH7, 39-year-old, caregiver)

Only pharmacists mentioned PC as a team-based effort which involves cooperation with other healthcare professionals:

from the point of prescribing all the way to dispensing, administration and to monitoring, the whole team must be involved... to be able to provide the best outcomes (42AH11, 18 years' experience, pharmacist)

Even though PC is a team-based care provision, the roles of doctors and pharmacists were understood in silos, where doctors diagnose and pharmacists dispense.

Some participants interpreted the difference between the two because of pharmacists' lack of access to medical records, and pharmacists' supply of medications without prescription being limited by law. Despite consumers knowing that pharmacists are capable of managing minor ailments in the community setting, nine (37.5%) consumers still prefer to see a doctor, which allows them to obtain medical leave and medical claims:

my company allows me medical claims so if I have medical claim, why should I go (to pharmacists instead)? (14BH7, 39-year-old, patient)

Even though patients and caregivers were aware of the extended roles of pharmacy providers in the hospital, such as performing medication reconciliation, 18 (75%) were unaware that pharmacists are trained to provide medication enquiry services, public education and attend ward rounds:

I expect the doctor around (during ward rounds), not the pharmacists (9BH4, 30-year-old, patient)

This contrasted with pharmacy providers' impression that consumers were aware of the identity of a pharmacist and would approach to enquire about their medicines:

If anyone knows you are a pharmacist, they will come and ask you (31AZH, 10–20 years' experience, pharmacist)

When pharmacy providers were asked for possible reasons why consumers do not understand the pharmacists' role in PC, a few mentioned that it could be due to the image that was portrayed:

(pharmacy) have always been a backstage kind of operation. You don't really go to (the) patient and say 'I'm checking to make sure your renal function... is ok with this medicine'... we cannot really advertise our work. (28AH3, 6 years' experience, PTs)

...you see (how they work) if you see drama... (about) nurse, doctors. (This understanding) can improve... with a drama (on) how a whole pharmacist (pharmacy) work (28AH3, 6 years' experience, PTs)

Roles of pharmacy providers in PC

Consumers were not aware of the presence and roles of PTs in a pharmacy. However, they had the impression that doctors and pharmacists worked in silos, but only pharmacy providers understood that both professions require inter-disciplinary cooperation. To which, one pharmacist stated that she played an assistive role in diagnosis:

Sometimes when they try to rule out any diagnosis or disease, then they will look at the medications. That is when you will come into play (38AH9, 1.5 years' experience, pharmacist)

Pharmacy providers also understood the roles of pharmacists in preventing prescription errors and optimisation of drug therapy, hence playing an essential role in private practice such as GP:

Fever... pain or headache, probably will be fine, but... (if they) have large pool of elderly patients... it's better to have a pharmacist to review their acute medications... because certain medications have higher risk of interaction, (concerns over) comorbidities, renal impairment... (27AH2, 3 years' experience, pharmacist)

However, six (25%) consumers had a sense of security with easy availability of information and hence felt safe with their GP that allowed clinic assistants, who were often without formal pharmacy training, to dispense medications and answer medication-related enquiries.

I recognise the name of the drugs, so I just (tell) the nurse (clinic assistant) that I do not need these because I am not having this illness. (16BH9, 53-year-old, caregiver)

Expectations towards pharmacy practice

Many of the consumers interviewed were satisfied with the quality of pharmacy services. While some were happy with improvements made over the past 5 to 10 years, interesting remarks were made in quality, safety and efficiency of care to suggest expectations have expanded beyond service-oriented transactions predominant in the past.

Quality of PC

Fifteen (63%) consumer participants interviewed expected pharmacy providers to go beyond the traditional roles of dispensing and supplying of medications. When asked for examples of quality service, most stated as having more personalised services, such as having personalised counselling and empathising with patients:

When people are sick... they tend to get anxious so pharmacists still play a key role in calming them down, making sure that their job is done to the fullest despite facing difficult patients (2BZ1, 22-year-old, patient)

Medication safety in PC

When asked about their expectations of medication safety, participants understood that medication errors were rare but not completely unavoidable, and might occur due to human error. Seven (15%) interviews mentioned the need to prevent such errors through checkpoints in place.

to ensure safety... the medication goes through many hands and it's like an integrated process... there must be various levels of checking; medication errors can be prevented (45BZ12, 40-year-old, caregiver)

we also collect data on near misses or medication errors, and from there, we analyse the causes and (see) what we can do about it... (27AH2, 3 years' experience, pharmacist)

Efficiency of PC

There were differing opinions on what could be done to drive efficiency in the future. Efficiency of PC includes services that could reduce waiting time for medications to allow focus to shift towards more clinical- and patient-centred pharmacy services. Five (19%) interviewed felt that automation would improve

efficiency in providing patients' medications, allowing focus of pharmacy practice on clinical work such as running clinics while others believe that the use of home delivery services and electronic prescriptions would be feasible:

PC will be... more automated because of the technology... patients can drop their prescription... then after some time... come back and collect their prescriptions and medications... inside (18AZ4, 5+years' experience, PTs)

electronic prescribing so the patients do not need to carry their manual prescription around... easier for the patient to... and also home delivery... the medications can be sent to their homes (22AZ6, 3 years' experience, pharmacist)

DISCUSSION

Our study of stakeholders' view of PC yielded heterogeneous responses. Consumers and pharmacy providers understood the concept to a varying extent and held different expectations and priorities for future pharmacy practice. This would have practical and policy implications.

Understanding of pharmaceutical care and roles of pharmacy providers

Against the changing healthcare landscape and expansion of pharmacists' roles in Singapore, patients today still do not perceive PC as a component of team-based care. In addition, many do not identify pharmacists as an integral member of the healthcare team.

Consumers do not have a clear understanding of PC as they understand the role of pharmacists only as a dispenser and supplier of medications, and not part of the team providing PC. However, pharmacy providers see PC as a team-based effort, where their role as a medication therapy manager involves providing medication information for patients and healthcare professionals, and attending ward rounds with doctors. The purpose is to prevent medication-related problems and optimise patients' medication therapy.¹⁷ Poor understanding of team-based PC can result in an absence of the patient-pharmacist relationship, potentially affecting therapeutic outcomes, as patients may view pharmacists' advice as less important, contributing to problems including polypharmacy and non-optimised medication therapy.^{18 19} Besides the annual Singapore Pharmacy week that aims to raise public awareness towards the pharmacy profession, more programmes to promote team-based PC could be implemented.²⁰ The Care to Go Beyond campaign in 2013, for example, was a good attempt to improve public understanding of our healthcare professional workforce as a whole.²¹ However, the success of these efforts were still limited by conventional, large-scale media exposures that still heavily and almost exclusively focus on doctors and other healthcare professionals in silos. In popular drama series local and abroad such as 'You Can Be An Angel' (Singapore), 'Doctors' (South Korea) and 'Grey's Anatomy' (United States), there was little emphasis made on the healthcare team as a whole, other than doctors and nurses.²² It further perpetuates a common public misunderstanding that healthcare is only provided by doctors and nurses, resulting in patients thinking that other allied healthcare professionals such as pharmacists and therapists are dispensable.

From our interviews, it is evident that consumers view PC as a doctor-centric function without the need to involve other healthcare professionals. Some consumers do not expect pharmacists to be present during ward rounds, and doctors performing both prescribing and dispensing tasks continued to be seen by most as appropriate. Only pharmacy providers were aware of

pharmacists' roles as a medication therapy manager in preventing medication and prescription errors, and optimising medication therapy, resulting in an inaccurate understanding of PC. The doctor-centric understanding of PC can result in an imbalance of relationship between healthcare professionals and the patient. Patients may view doctors' advice regarding medications as more important than pharmacists. As such, patients may not consult pharmacists on medication-related issues. It could also result in a false sense of security as consumers may underestimate the risks of prescribing errors, over-prescribing and prescribing with conflict of interest.^{23 24} This may not only increase treatment cost, but can potentially affect patients' adherence to medications and hence reduce therapy effectiveness. Thus, separation of prescribing and dispensing may be an important policy change to pursue.²⁵ This requires both the public and policymakers to understand that pharmacists can prevent the misuse and overuse of medications by operating within a framework of checks and balances between the prescribers and dispensers.

Consumers do not understand the difference in the roles of pharmacists and PTs. Consumers are unaware of the presence or roles of PTs in the pharmacy team. However, pharmacy providers see PC as a team-based effort, where PTs pack the medications and ensures correct billing schemes and subsidies for the patients both in the inpatient and outpatient settings, ensuring patients obtains the correct and cost-efficient medications for them. To date, no studies have evaluated the impact of PTs on the provision of cost-effective PC. More studies could be done to evaluate how PTs reduce medication errors and waiting time.

Managing expectations towards pharmacy practice

Patients still expected pharmacy services and processes to be of good quality, safe and efficient. However, expectations are no longer limited to the realm of basic services and quality indicators.

When compared with a 1997 local study,¹⁴ consumers' expectations have transformed beyond service-oriented transactions to experience-oriented care delivery. Even then many cited improvements in certain aspects such as waiting time and provision of medication information during dispensing. Consumers today expect more personalisation in the form of patient-centred care, personalised counselling and dose administration aids such as single-dose packaging which provide convenience to patients and help improve medication adherence. The change in expectations could be due to deindustrialisation and shifting of the economic focus to one that is value-adding and service-centred, with people demanding more personalised services to meet their specific needs, prompting the need for changes in the healthcare service to suit each individual's needs.

To improve medication safety, the health literacy of patients and their caregivers play a crucial role in their health management. The ongoing digital revolution has markedly eased the transmission and sharing of information over traditional barriers of time and place. It produces a growing group of healthcare consumers who may be more informed and equipped with medical information from online resources. With the vast amount of information flooding the public domain, the risk of consumers being misinformed or misled by unreliable sources of information is real. Therein lies an increasingly urgent need for pharmacy providers to provide reassurance and educate our consumers. Current implementation of continuing professional education and in-house training programmes have increased emphasis on patient education, especially in areas of patient communication. Similar initiatives such as 'Know Your Medicine, Get It

Right!';²⁶ where pharmacists and students travel to residential areas around Singapore to educate residents on appropriate medication use, could be expanded and perhaps co-managed by both hospitals and community pharmacy partners. This would improve the public's medication and health knowledge, increase public awareness of pharmacy services and build sustainable, long-term rapport with the community.

For operational efficiency, the shift from manual processes to the use of automations has been embraced by pharmacy providers and consumers in Singapore today as it is perceived to be able to reduce costs, medication errors and waiting time of prescription filling.^{27,28} With increasing complexity and demand for healthcare, automations are seen as quick solutions to allow pharmacy providers more time to engage in patient care activities by reducing processing time and enhancing safety.²⁹ Innovative unmanned solutions such as service kiosks may also be further implemented to improve operational efficiency.³⁰

Strengths and limitations

The use of SSIs enabled the interviewers to prepare questions ahead of time and have a broad framework for the questioning. It followed a discussion track while allowing participants certain freedom to express their views. Further information could also be elicited by probing. Such a method allowed for easy categorisation and comparison of ideas and themes during indexing and mapping of data. In addition, participants were purposefully sampled to ensure a broad sample group with varying age groups and education backgrounds to elicit a good representation of different responses. The use of group discussions for PTs might allow for synergy in answering questions, adding richness to the data collected. Such a method is especially useful in eliciting responses from participants who may be less vocal on the issues discussed.

However, our study had several limitations. As the study was only conducted in one public healthcare institution, there could be limitations in generalising the study findings. However, many participants had exposure and knowledge of healthcare in various settings as Singapore's healthcare system is highly porous, with patients visiting more than one healthcare institution throughout their life. Second, our study had a rejection rate of 16%, which was mainly due to minimal English (n=5) and patients who were unsure about pharmacy services (n=3). The study team did not expect those rejections to affect the validity of the results due to several reasons: the same standard of care is being provided regardless of race, language and religion in Singapore and there is no strong reason to believe that participants of different cultural or language background should experience significant differences in their healthcare journeys; and many of the participants we encountered were bi- or multi-lingual. The views of the missed patients could have been covered by these patients as well, in the presence of repeated sampling in the various care settings and data saturation rules. As for patients who were unsure about pharmacy services, their views would very unlikely provide any insights or sway our results and conclusion of incomplete PC understanding even if they were to take part.

CONCLUSIONS

With the change in patients' needs and pharmacists' roles in Singapore over the past two decades, there remains varying degrees of understanding towards PC, and pharmacists being perceived as dispensable. Beyond basic service provisions, expectations of pharmacy practice have become more experience-oriented. Some of these changes in expectations

might have stemmed from having an incomplete understanding of PC and the lack of awareness to changing roles of pharmacy providers. Therefore, it is important for policy changes that expand pharmacists' roles to be matched with corresponding publicity and education efforts to encourage optimal service utilisation.

What this paper adds

What is already known on this subject

- The pharmacist's role has evolved from a compounder and dispenser to a 'medication therapy manager' to provide patient-centric care with extended clinical functions such as providing medication information and optimising medication therapy
- Pharmacist-provided services resulted in significantly improved care quality, clinical outcomes and prescribing outcomes
- In advanced health systems, patients understand the evolution of pharmacy practice and pharmacists' contribution towards pharmaceutical care only in recent years
- The current study was performed to understand how comprehension and expectations of pharmacy services and practice has changed in Singapore, to better implement improvement measures to existing pharmacy services.

What this study adds

- Current understanding and perception of the roles of the pharmacist by pharmacy service providers and patients and caregivers, and how differences in understanding can be bridged
- Explore how expectations of pharmacy services has changed and how these expectations can be met

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