Original Research

Customers' satisfaction toward drugstore facilities and services based on the good pharmacy practice standard in Thailand

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Abstract

Introduction: The Good Pharmacy Practice (GPP) standards in Thailand have been legally implemented for all drugstores since 2014. However, customer satisfaction has not been studied. This research aimed to explore the satisfaction of the customers with the facilities and services received from drugstores under the GPP standards and examine the impact of satisfaction toward each GPP domain on overall satisfaction (OS) and the intention to receive the pharmacy services as the first choice in the case of common and non-serious illnesses (IntR). **Methods:** This research was a cross-sectional survey study. The Google Forms for data collection was distributed via the online social media between June and August 2021. The satisfaction toward OS, IntR, and the GPP domains; places and equipment (PE), personnel (P), quality control (QC), and pharmacy services (PS) were collected using 5-Likert scales. Descriptive statistics, intra-class correlation, and multiple regression were used in data analysis with statistical significance at p-value<0.05. **Results:** Three hundred and eighty-eight drugstore's customers responded to the questionnaires. Most customers rated the OS and the IntR at the highest level. The mean of the OS was 4.4±0.7 and the IntR was 4.6±0.7 points out of five. The OS and the IntR were highly correlated with the ICC of 0.719 (p-value<0.001). The satisfactions toward each GPP criteria were ranged between 3.9±0.9 to 4.6±0.7 indicating high levels of satisfaction. All 4 domains of the GPP standards explained the OS and the IntR with R square at 0.541 and 0.363, respectively. However, only PS and PE impacted the OS and only QC and PS impacted the IntR with statistical significance. **Conclusion:** Thai customers had high levels of the OS and the IntR toward drugstore facilities and services based on the GPP standards. The PS was the domain that statistically influenced both the OS and the IntR, whereas the PE and the QC also statistically influenced the OS and the IntR, respectively. Since PE was the most weighted domain for current inspection, PS and QC should be more emphasized in future revision of the GPP inspection.

Keywords: Customer; Satisfaction; Drugstore; Good Pharmacy Practice; GPP

INTRODUCTION

Good Pharmacy Practice (GPP) was originally developed in 1992 by the International Pharmaceutical Federation (FIP) and subsequently approved by the World Health Organization (WHO) in 1994. Then, in 2011, WHO amended the GPP guidelines by establishing its minimum standards so that each country could adapt and apply them to its contexts and the pharmacy practice environment.[1] There were four main roles where pharmacists' involvement or supervision were expected by society and the individuals they served: (1) prepare, obtain, store, secure, distribute, administer, dispense and dispose of medical products, (2) provide effective medication therapy management, (3) maintain and improve professional performance, and (4) contribute to improve effectiveness of the health-care system and public health.[1] Although the GPP standards have been encouraged by FIP/WHO since 2011, the GPP standards implementation have not been well established worldwide. The survey in Lebanon revealed that the GPP standards were not fulfilled by community pharmacists[2] whereas the implementation of the GPP standards in Korea was not fully legislated.[3]

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The development of pharmacy standards for the provision of quality medicines and health services in Thailand was initiated by the Pharmacy Council of Thailand. The council established the accreditation of professional pharmacy in drugstores in 2003, known as the "Accredited Pharmacy". This was a project in which pharmacists in drugstores voluntarily participated, so that was primarily limit to Bangkok metropolitan and particular areas.[4] Then, in 2014, the Ministry of Public Health of Thailand announced the legal enforcement of the GPP standards determining the criteria and measures that all drugstores were required to comply with. In addition, drugstores had to pass the GPP inspection, which was considered a condition of the annual renewal of operating licenses. Drugstores that were unable to pass the inspection were unable to renew their licenses and were finally closed.[5]

Based on the statistics of Food and Drug Administration (FDA) of Thailand, there were 16,816 drugstores across the country in 2021. The distribution of the drugstores was not even, 44.4% in Central region, 31.4% in Southern, Eastern, and Western region, 16.3% in Northeastern region, and 7.9% in Northern region.[6] Most drugstores in Thailand were private and individual, resulting in different facilities and service standards. Therefore, the GPP standards enforcement in 2014 was to standardize the drugstores based on the GPP criteria as minimum requirements. All the drugstores that were approved to operate after the GPP standards enforcement in 2014 had to already comply with the GPP standards. However, the drugstores which were registered before the law

enforcement were required to pass the GPP inspection within eight years. Ultimately, all modern drugstores in Thailand need to provide facilities and services as required by the GPP standards in 2022.[7]

The key content of Thai GPP standards, requires that drugstores follow four domains: (1) places and equipment, (2) personnel, (3) quality control, and (4) pharmacy service.[8] As for the inspection, each GPP criterion is weighted differently based on its significance. In terms of critical criteria, drugstores are required to comply with all those criteria. To be able to renew their operating licenses each year, drugstores have to meet all the critical criteria and obtain higher summative scores in each domain than those determined as standard.[9]

Even though the GPP standards exist to enhance the service quality of drugstores in Thailand, the processes for developing the criteria depend on the point of view of providers and policy makers. Customer satisfaction also indicates the quality of service and plays an important role in quality improvement. The drugstore's customers' satisfaction survey can serve as a guide to improve the quality of service that meets their needs. According to international studies, drugstore's customers expressed a variety of satisfaction levels across places, contexts, and service models in each country.[10-12] Concerning Thailand, there had been a survey of customer perspectives and opinions on pharmacy services. This study was conducted before the full implementation of the GPP standards.[13] In addition, other surveys revealed only the readiness and achievement of provider perspectives based on the GPP standards.[14-18]

This study aimed to (1) explore the satisfaction of Thai customers with the facilities and services received from drugstores under the GPP standards and (2) examine the impact of satisfaction toward each GPP domain on overall satisfaction (hereinafter referred to as OS) and the intention to receive the pharmacy services as the first choice in the case of common and non-serious illnesses (hereinafter referred to as IntR).

METHODS

This research was a cross-sectional survey study. The data were collected between June and August 2021 after being approved by the Human Experimentation Committee Research Institute for Health Sciences (RIHES), Chiang Mai University, Chiang Mai, Thailand (No. 30/2021).

Population and sample

The population was drugstore's customers aged 18 years and over, who could communicate in Thai. The sample size was calculated using a formula for estimating a proportion.[19] The satisfaction level of drugstore's customers from previous research was determined at 51.9%.[11] As a result, the sample size had no less than 384 people. The sample was selected using a convenience sampling method.[20] The data was collected only from the drugstore's customers who had received services

from any drugstores within one year, to ensure that the opinions obtained were for drugstores that passed the GPP standards.

Data collection

The data were collected online using Google forms for survey. The authors distributed a QR code and a link to the questionnaire via the online social media including Facebook and LINE application, for institutional alumni groups, general online marketplaces and stores, and provincial news channels where the public were members.

Research tools

The authors developed the questionnaire based on the GPP manual published by the Thai Food and Drug Administration (FDA).[8,21] The content validity of the draft questionnaire was assessed by three GPP specialists. They were (1) a pharmacist in a provincial public health office, (2) a pharmacist instructor teaching in the topic related to the GPP standards, and (3) a pharmacist in an accredited pharmacy. The item-objective congruence index (IOC) values of the items were 0.67-1, indicating good content validity. As for the reliability test and language clarity of the draft questionnaire, it was conducted with a pilot group of 35 people. The Cronbach's alpha coefficient was found to be 0.96. This indicated the fact that the questionnaire developed was valid and reliable. The final questionnaire consisted of two parts. The first part included general information on respondents and drugstores serving them. The second part consisted of 30 questions to collect the customers' satisfaction level, included 9 items for places and equipment (PE) questions, 4 for personnel (P) questions, 5 for quality control (QC) questions, 10 for pharmacy service (PS) questions, 1 for OS question, and 1 for Int question. The responses were classified into five Likert scales that were 5-very satisfied, 4-satisfied, 3-neutral, 2-unsatisfied, and 1-very unsatisfied.

Data analysis

The data were analyzed using the IBM® SPSS® statistical software package (version 22). Quantitative data from the survey were interpreted using descriptive statistics consisting of percentages, means, standard deviations, medians, and interquartile range. The correlation between the OS and the IntR was evaluated using an intra-class correlation coefficient (one-way random effects with an absolute agreement (ICC (1, k)). The impacts of satisfaction toward the GPP domains on the OS and the IntR were calculated using a multiple regression analysis through an enter technique with statistical significance at p-value<0.05.

RESULTS

Characteristics of respondents

Three hundred and eighty-eight drugstore's customers responded to the questionnaires. Most were women (76.3%) with a median age of 29 years (interquartile

range 23-40 years). The median frequency of drugstore visiting was five times per year (interquartile range 3-10 times per year). Altogether, 84.5% of the respondents held bachelor's degree or higher. They lived in different provinces across Thailand, which were primarily in Central and Northern regions of Thailand (Table 1).

Overall opinions of customers towards the OS and the IntR

Most customers rated the OS at the highest and the high levels (55.2% and 34.8%, respectively). The mean of the OS was 4.4±0.7 points out of five. Most customers also rated the IntR at the highest and the high levels (64.7% and 27.6%, respectively). The mean of the IntR was 4.6±0.7 points out of five (Table 2). The OS and the IntR were highly correlated with the ICC of 0.719 (p-value<0.001).

Customer satisfactions toward facilities and services of drugstores based on the GPP standards

The GPP criteria with the highest level of satisfaction were "PE1# There are preventive measures for drug allergy including warning signs and specific counting tray for antibiotics" (4.5±0.7), "P1 Pharmacists possess enough knowledge to provide services" (4.6±0.7), "QC1# Expired drugs shall notbe dispensed" (4.6±0.7), and "PS1 The patient's essential information is comprehensively gathered as part of drug dispensing" (4.6±0.7), in terms of places and equipment, personnel, quality control, and pharmacy service domains, respectively (Table 3).

On the contrary, for "PE9# There is an automatic blood pressure monitoring device" (3.9±0.9), "P4 Other staff do not dress in a way that may misrepresent themselves as pharmacists" (4.2±1.0), "QC5 Drugs are kept in the proper temperature, including refrigerator if required" (4.1±0.9), and "PS10# Drugs shall not be dispensed if pharmacists are not available" (4.2±1.0) received the least satisfaction for each domain from the customers (Table 3).

Impact of the GPP domains on the OS and the IntR

Based on the multiple regression analysis, it was found that the PE, P, QC, and PS domains explained the OS with their R square at 0.541. However, only PS and PE impacted the OS with statistical significance (Beta=0.507 and 0.239, respectively; p-value<0.001). All the four domains likewise explained the IntR with their R square at 0.363. Only QC and PS impacted the IntR with statistical significance (Beta=0.416 and 0.311, respectively; p-value<0.001) (Table 4).

DISCUSSION

This research was a cross-sectional survey study. Opinions of customers who had received services from any drugstores within one year, were collected as the GPP standards were to be fully implemented in Thailand by 2022. The findings revealed that the OS and the IntR of Thai customers were at high levels. Although there were

Table 1. Characteristics of the respondents (n=388)	
Characteristics	**Number (Percent)**
Gender	
Male	82 (21.1)
Female	296 (76.3)
Not identified	10 (2.6)
The region they lived	
Central region	180 (46.4)
Northern region	147 (37.9)
Southern, Eastern, and Western region	44 (11.3)
Northeastern region	17 (4.4)
Highest education qualification	
Primary	2 (0.5)
Secondary or equivalent	58 (15.0)
Bachelor's degree or equivalent	234 (60.3)
Higher than Bachelor's degree	94 (24.2)
Major occupation	
University students	119 (30.7)
Full-time jobs with salary and benefits (company officers, employees, civil servants)	160 (41.2)
No full-time jobs with salary and benefits (private businessmen, merchants, retired people, jobless ones)	68 (17.5)
Not identified	41 (10.6)
Age (years)*	29 (23-40)
Frequency of drugstore visiting (times/year)*	5 (3-10)

*Median value (interquartile range)

Table 2. Overall opinions of customers towards the OS and the IntR (n=388)						
Question items	**Highest n (%)**	**High n (%)**	**Moderate n (%)**	**Less n (%)**	**Least n (%)**	**Mean±SD**
OS: Overall satisfaction with pharmacy facilities and services.	214 (55.2)	135 (34.8)	35 (9.0)	4 (1.0)	0	4.4±0.7
IntR: Intention to receive the pharmacy services as the first choice in the case of common and non-serious illnesses.	251 (64.7)	107 (27.6)	26 (6.7)	4 (1.0)	0	4.6±0.7

Table 3. Satisfaction toward the GPP standards (n=388)							
	GPP criteria	**Very satisfied n(%)**	**Satisfied n(%)**	**Neutral n(%)**	**Unsatisfied n(%)**	**Very unsatisfied n(%)**	**Mean±SD**
	Places and equipment domain						
PE1#	There are preventive measures for drug allergy including warning signs and specific counting tray for antibiotics.	251 (64.7)	99 (25.5)	31 (8.0)	5 (1.3)	2 (0.5)	4.5±0.7
PE2#	Drugs are displayed based by pharmacologic classification with tags.	214 (55.1)	133 (34.3)	37 (9.5)	3 (0.8)	1 (0.3)	4.4±0.7
PE3#	The temperature at the pharmacy service area is appropriate.	187 (48.2)	147 (37.8)	44(11.3)	8 (2.1)	2 (0.6)	4.3±0.8
PE4#	There is sufficient area for pharmacy services.	145 (37.4)	183 (47.1)	53 (13.7)	6 (1.5)	1 (0.3)	4.2±0.7
PE5#	Drugs in display areas are concealed when pharmacists are not on duty.	188 (48.5)	126 (32.5)	54 (13.9)	14 (3.6)	6 (1.5)	4.2±0.9
PE6#	There is a fire extinguisher.	165 (42.5)	118 (30.4)	90 (23.2)	10 (2.6)	5 (1.3)	4.1±0.9
PE7	There is a counseling table, separate from the dispensing area.	137 (35.3)	141 (36.3)	89 (22.9)	19 (4.9)	2 (0.6)	4.0±0.9
PE8#	There is a weighing scale and height meter.	152 (39.2)	122 (31.4)	97 (25.0)	12 (3.1)	5 (1.3)	4.0±0.9
PE9#	There is an automatic blood pressure monitoring device.	143 (36.8)	121 (31.2)	106 (27.3)	13 (3.4)	5 (1.3)	3.9±0.9
	Personnel domain						
P1	Pharmacists possess enough knowledge to provide services.	262 (67.5)	96 (24.7)	25 (6.4)	2 (0.6)	3 (0.8)	4.6±0.7
P2	A professional pharmacist license is obviously displayed.	239 (61.6)	100 (25.8)	40 (10.3)	6 (1.5)	3 (0.8)	4.5±0.8
P3	Pharmacists wear gowns as required by the pharmacy council.	228 (58.8)	114 (29.4)	33 (8.5)	6 (1.5)	7 (1.8)	4.4±0.9
P4	Other staff do not dress in a way that may misrepresent themselves as pharmacists.	202 (52.1)	116 (29.9)	48 (12.4)	9 (2.3)	13 (3.4)	4.2±1.0
	Quality control domain						
QC1#	Expired drugs shall not be dispensed.	281 (72.3)	77 (19.8)	26 (6.7)	2 (0.6)	2 (0.6)	4.6±0.7
QC2	Drugs are of quality and standard.	275 (70.9)	88 (22.7)	21 (5.4)	4 (1.0)	-	4.6±0.6
QC3#	There are no illegal drugs.	244 (62.9)	114 (29.4)	23 (5.9)	6 (1.5)	1 (0.3)	4.5±0.7
QC4	There are preventive measures to detect expired drugs including colored stickers on drug packages.	209 (53.8)	111 (28.6)	55 (14.2)	8 (2.1)	5 (1.3)	4.3±0.9
QC5	Drugs are kept in the proper temperature, including refrigerator if required.	142 (36.6)	150 (38.6)	80 (20.6)	14 (3.6)	2 (0.6)	4.1±0.9
	Pharmacy service domain						
PS1	The patient's essential information is comprehensively gathered as part of drug dispensing.	261 (67.2)	97 (24.9)	26 (6.7)	2 (0.6)	2 (0.6)	4.6±0.7
PS2	There are clear and complete drug instructions on labels.	263 (67.8)	95 (24.5)	26 (6.7)	4 (1.0)	-	4.6±0.7
PS3	Liquors and cigarettes are not allowed.	281 (72.3)	78 (20.1)	26 (6.7)	2 (0.6)	1 (0.3)	4.6±0.6
PS4#	Pharmacists remain on duty all through business hours.	248 (63.9)	91 (23.5)	35 (9.0)	8 (2.1)	6 (1.5)	4.5±0.9
PS5	There is clear and complete dispensing information on labels.	242 (62.3)	104 (26.8)	34 (8.8)	6 (1.5)	2 (0.6)	4.5±0.8
PS6	Pharmacists could respond appropriately to customer questions.	252 (64.9)	98 (25.3)	32 (8.2)	4 (1.0)	2 (0.6)	4.5±0.7
PS7	There are clear and complete drugstore contact information on labels.	236 (60.8)	99 (25.5)	45 (11.6)	5 (1.3)	3 (0.8)	4.4±0.8
PS8	There are no unethical drug advertising or promotional materials.	228 (58.7)	100 (25.8)	52 (13.4)	6 (1.5)	2 (0.6)	4.4±0.8
PS9	There are disease screening and referral services.	215 (55.4)	111 (28.6)	49 (12.6)	8 (2.1)	5 1.3)	4.3±0.9
PS10#	Drugs shall not be dispensed if pharmacists are not available.	193 (49.7)	119 (30.7)	50 (12.9)	17 (4.4)	9 (2.3)	4.2±1.0

*# indicates the critical criteria in this domain.

Table 4. Multiple regression analysis of the GPP domains on the OS and the IntR

GPP domains	Overall satisfaction (OS)				Intention to receive services (IntR)			
	b	SE	Beta	p-value	b	SE	Beta	p-value
PE: Places and equipment	0.268	0.074	0.239	<0.001	0.010	0.083	0.009	0.903
P: Personnel	-0.085	0.068	-0.084	0.211	-0.121	0.076	-0.125	0.111
QC: Quality control	0.136	0.080	0.110	0.091	0.489	0.090	0.416	<0.001
PS: Pharmacy service	0.581	0.083	0.507	<0.001	0.338	0.093	0.311	<0.001
Constant value	0.490	0.196		0.013	1.372	0.219		<0.001
	R=0.736, R^2=0.541, SEE=0.476, F=112.893, Sig. of F<0.001				R=0.603, R^2=0.363, SEE=0.534, F=54.582, Sig. of F<0.001			

four domains of the GPP standards, only PE and PS had a significant impact on the OS, whereas only QC and PS had a significant impact on the IntR.

Most customers receiving services in drugstores in Thailand were satisfied with facilities and services based on the GPP standards at the high and the highest levels. This was different from the situation in other countries.[10,12] In Saudi Arabia and Pakistan, only 41%[12] and 39.6%[10] of customers were satisfied with their drugstores' services, respectively. This might result from the unique characteristics of Thai drugstore as follow; (1) most medications registered in Thailand were classified as "dangerous drugs," under the Drugs Act of 1967. Those medications may be available for dispensing independently by community pharmacists without a physician's prescription, (2) there were different types of services provided in Thai drugstores, including risk screening for non-communicable diseases (NCDs), medication therapy management (MTM), and smoking cessation. For pharmacy services, they could cover most of the medication-related needs of Thai customers, (3) the distribution in all areas with long hours of operation allowed drugstores in Thailand to become easily accessible, (4) drugstores were more convenient and economical than other health care units.[22,23] In addition, the implementation of the GPP standards in Thailand was a requirement for the annual license renewal. This resulted in high standards of facilities and services in drugstores at fairly similar levels[7] as opposed to the survey in Pakistan where only 39.6% of customers were satisfied with drugstores services since the GPP standards were not legally enforced and quality of services varied.[10]

Studies by Yotsombut et al. and Nitadpakorn et al. indicated that PS, namely medication counseling, primary diagnosis of common disease, and risk screening, were key factors for customer satisfaction.[23,24] Besides, the low level of satisfaction toward PS, due to lack of trust in pharmacists' knowledge and skills, was shown to be a cause of low levels of the OS in Pakistan and Saudi Arabia.[10,12] The customers of this study were satisfied with PS at a high level which lead to the high levels of the

OS and the IntR as confirmed by the multiple regression analysis. However, it was found that all four domains of GPP could explain the OS and the IntR better than PS only ($R^2_{4domains}$=0.541 and 0.363, R^2_{PS}=0.510 and 0.303, respectively). Thus, emphasis should be placed on PS along with other criteria.

Most of the critical criteria of the GPP standards in Thailand were in PE domain (PE1-6 and PE8-9) whereas only 4 criteria from other domains (QC1, QC3, PS4, and PS10) were justified as such.[25] Therefore, drugstores in Thailand that passed the GPP inspection tended to be in good compliance with the criteria in PE and received high level of the OS as PE significantly influenced OS. On the contrary, to pass the GPP standards might not result in a high level of the IntR because PE was not a significant influencing factor on the IntR as demonstrated by the multiple regression analysis in this study. Therefore, the critical criteria of Thai GPP standards should be revised to ensure that passing the standards definitely enhanced the OS and the IntR of drugstores' customers. The PS and QC which significantly influence the OS and the IntR need to be more emphasized.

The data collection for this research was through online questionnaires. This could lead to the limitation of research in that respondents tended to be educated, well equipped, and familiar with the use of an online questionnaire system. Moreover, the criterion for selecting the sample of this study was individuals who received drugstore services within one year. This could result in a social desirability bias as well as a recall bias. Therefore, further research should be conducted shortly after receiving services. It should be designed to be composed of respondents from different regions and education levels, so that it could be generalizable.

CONCLUSION

Customers receiving services from drugstores in Thailand had high levels of the OS and the IntR toward drugstore facilities and services based on the four domains of the GPP standards. Although the PE statistically influenced

only on the IntR, it was the most weighted domain with majority of the critical criteria of the GPP standards. Besides, the PS was the domain that statistically influenced both the OS and the IntR and the QC also statistically influenced the IntR. Therefore, the inspection criteria that increasingly emphasizes on PS and QC should be taken into account when revising the GPP standards for Thai drugstores.

AUTHORS CONTRIBUTION

Roles	Kitiyot Yotsombut	Pantira Parinyarux
Conceptualization	/	/
Data curation	/	/
Formal Analysis	/	/
Funding acquisition	N/A	N/A
Investigation	/	/
Methodology	/	/
Project administration	/	N/A
Resources	/	/
Software	/	N/A
Supervision	/	N/A
Validation	/	/
Visualization	/	/
Writing – original draft	N/A	/
Writing – review & editing	/	/

RESEARCH ETHICS AND PATIENT CONSENT

The data were collected between June and August 2021 after being approved by the Human Experimentation Committee Research Institute for Health Sciences (RIHES), Chiang Mai University, Chiang Mai, Thailand (No. 30/2021).

CONFLICTS OF INTEREST

The authors declare that there is no conflicts of interest.

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