



Observances Telepharmacy Standards of Community Pharmacies in Thailand: A Preliminary Survey

Ong-art Maneemai^{1,2,3*}, Sirayut Phatthanasobhon^{1,2}, Patchalee Jaroenpiyapat¹, Pimlapus Wongwiwattana¹

¹Department of Pharmaceutical Care, School of Pharmaceutical Sciences, University of Phayao, Phayao, 56000 Thailand

²Pharmacoepidemiology, Social and Administrative Pharmacy (P-SAP) Research Unit, School of Pharmaceutical Sciences, University of Phayao, Phayao, 56000 Thailand

³Research Unit for Health Sustainability Development, University of Phayao, Phayao, Thailand

*Corresponding author:

(Received: 07 October 2023

Revised: 12 November

Accepted: 06 December)

KEYWORDS

Coronavirus disease 2019, COVID-19, Telepharmacy, Drugstores

Abstract

Objectives: To investigate the observances of the Standard of Telepharmacy of the Pharmacy Council of Thailand. **Methods:** This survey study gathered the data through an online questionnaire from 25 February to 5 March 2022 among the community pharmacists. Accidental sampling was used to sampling the participants. Descriptive statistics was used in statistical analysis. Community pharmacies' practices were compared before and after the COVID-19 pandemic using the Wilcoxon Signed-Rank Test. Significance level was determined at $p < 0.05$. **Results:** A total of 50 pharmacists responded to the survey. There are 16 drugstores (32.0%) serving the telepharmacy services after the COVID-19 outbreak. Nine drugstores (56.25%) have a pharmacist as a regular service provider. The most common practices that adhered to the telepharmacy standards were taking history on drug allergy or drug adverse reaction ($n=12$, 75.0%); past medication profile ($n=12$, 75.0%), providing information about medication list ($n=12$, 75.0%); drug administration ($n=12$, 75.0%); and warning and precautions ($n=12$, 75.0%). The most non-compliance to telepharmacy standards included checking patient registration with a prescription-specified facility ($n=7$, 43.8%), requesting permission to record audio or video during service ($n=5$, 31.5%) and requesting consent to access medical history ($n=5$, 31.5%). **Conclusion:** Drugstores cooperated in complying with the Standard of telepharmacy as well, but they still need to encourage some additional actions to provide safety, standardized and convenient service to customers.

1. Introduction

The outbreak of coronavirus disease 2019 (COVID-19) is a global public health emergency. In Thailand, there were so many infected people that COVID-19 was declared as a dangerous contagious disease on February 26, 2020^[1]. On the other hand, community pharmacies are places for selling medicines, medical supplies, and other health products to service users who are healthy and unhealthy people as well as people at risk of COVID-19. Some pharmacies are small, and some provide services in closed air-conditioned areas. Therefore, service providers and service users are in close contact and at risk of exposure and spread of infection. As a result, Ministry of Public Health provides guidelines for pharmacies to apply in coping with the COVID-19 situations, according to Regulations Issued

Under the Decree on Public Administration in Emergency Situations B.E. 2548 (2005)^[2].

In the past, pharmaceutical service of drugstores in Thailand is conducted only in a form of face-to-face service at drugstores due to legal requirements in drug sales. However, after the COVID-19 pandemic, public health service of all professions in medical facilities and drugstores have to be adapted to reduce risk contact and chance of transmission among people according to the government measures^[2]. The concept of telehealth which is an application of long-distance public health service technology is increasingly applied in medical services^[3,4,5]. Similarly, telepharmacy of pharmaceutical professionals is increasingly used as well for facilitating patients or service users^[3,6].

The Pharmacy Council of Thailand issued the Notification of the Pharmacy Council of Thailand on



Telepharmacy Standards and Procedure as a security for people to receive standard services. Telepharmacy is defined by the Pharmacy Council of Thailand as pharmaceutical care and related services to patients or service users. In telepharmacy, pharmaceutical professionals can communicate with patients or service users through communication technology, and then deliver medicines. Telepharmacy can be classified into 3 aspects: service in medical facilities (hospitals), service at drugstores upon prescription, and service at drugstores without prescription^[7].

The situation of COVID-19 pandemic accelerates drugstores to change a form in giving services, adjust places and equipment to be ready for disease control and prevention, and change pharmaceutical service into telepharmacy. In the past 2 years since the outbreak of COVID-19 in Thailand, no studies were conducted about observances of the COVID-19 disease control and prevention measure and telepharmacy standards among community pharmacies in Thailand. Therefore, this study was implemented with the objective to study the observances of community pharmacies according to the COVID-19 disease control and prevention measures of the Ministry of Public Health, and telepharmacy standards of the Pharmacy Council of Thailand. The findings can be fundamental data for planning quality development in giving pharmaceutical services in the pandemic situation.

2. Materials and Method

Design

This research was a cross-sectional survey study by using an online questionnaire to collect the data. This study was a part of the study a form of pharmacy service and public opinions on telepharmacy among community pharmacies. The study received approval from Human Research Ethics Committee, University of Phayao (No. UP-HEC 1.2/003/65).

Population and Samples

The population of the study included practitioners in community pharmacies who were licensees or pharmacists working in 16,494 modern pharmacies^[8]. The samples were licensees or pharmacists working in modern pharmacies. The sample size was calculated with Cochran formula for finite population^[9]. The inclusion criteria were in (1) being

practitioners who might be licensees or pharmacists working in modern pharmacies, (2) being able to access an online questionnaire, and (3) giving written consent by themselves. The inclusion criterion was in giving incomplete questionnaire.

Research Instrument

The research instrument was a researcher-developed questionnaire through the Google Form system. The questionnaire was assessed in content validity by three experts: two experts who had been community pharmacists more than 2 years, and one expert who was a lecturer in School of Pharmaceutical Sciences with experience in community pharmacy. The content validity index (CVI) was calculated from selected items with CVI over 0.80^[10], and the questionnaire items were improved according to the experts' suggestions. After that, the improved questionnaire was tested in reliability by trailing the questionnaire with another group of 30 pharmacy practitioners who had similar characteristics of the samples. Then, the Cronbach's alpha coefficient was calculated under the criteria that the suitable Cronbach's alpha coefficient should be more than 0.70^[11]. The resulting Cronbach's alpha coefficient of the developed questionnaire was 0.918. The questionnaire consisted of 2 parts as follows:

Part 1: General data of the respondents and community pharmacies about gender, age, educational level, and location of pharmacies in 12 items.

Part 3: Observances of the telepharmacy standards. This part was developed by the researcher by basing on the Notification of the Pharmacy Council of Thailand on Telepharmacy Standards and Procedure^[7]. This part consisted of 34 items in the form of the 5-level rating scale questions: always, often, sometimes, seldom, and never. The Cronbach's alpha coefficient of this part was 0.917.

Data Collection

The researcher collected the data through an online survey system for the respondents to complete the questionnaire independently. The questionnaire was disseminated through online social media such as Facebook groups and fanpages of pharmacist groups such as Pharmacafe, Pharma Society, Community Pharmacist Club, and Direction of Pharmacists etc. The researcher directly sent an invitation to join the study through Line application or Facebook fanpages of



community pharmacies. The data collection period was during February 25 – March 5, 2022).

Data Analysis

The researcher examined the questionnaire completeness one by one and collected the data from the Google Form system by transferring the collected data into the Microsoft Excel program. The data were analyzed with the statistical analysis program. The quantitative data were analyzed into descriptive statistics i.e., frequency distribution, percentage, mean, and standard deviation. The Wilcoxon Signed-Rank Test was used to compare observances between before and after the situation of the COVID-19 pandemic.

3. Results

Characteristics of the Respondents

The total respondents were 50 people as the representatives of 50 community pharmacies: 21 men (42.0%), and 29 women (58.0%). The average age of the respondents was 34.30 ± 7.06 years, and most of them graduated at the bachelor's level ($n=46$, 92.0%). Half of the respondents were licensees of modern pharmacies and pharmacists according to drug laws ($n=25$, 50.0%) who were 21 pharmacists (42.0%), and 4 licensees of modern pharmacies (8.0%) (Table 1).

The 50 community pharmacies in the study were distributed in various regions of Thailand both inside and outside the municipality areas. The community pharmacies were classified according to pharmacy management into 4 types: single pharmacies ($n= 36$, 72.0%), pharmacy branches ($n=9$, 18.0%), franchised pharmacies ($n=4$, 8.0%), and community pharmacy of School of Pharmaceutical Sciences ($n=1$, 2.0%). Among these 50 community pharmacies, 11 pharmacies (22.0%) were approved as accredited pharmacies by the Pharmacy Council of Thailand. Regarding participation with the government projects, 21 pharmacies (42.0%) participated as service units under the Mor Prom Station Project, 10 pharmacies (20.0%) participated in the Near-home Medicine Pick-up Project to reduce congestion of patients with chronic diseases according to the policy of Ministry of Public Health, and 6 pharmacies (12.0%) participated in giving advices to COVID-19 patients in home isolation in the RX Pharmacist Volunteer Project of Rural Pharmacist Club. In terms of medical history of service users, 34 pharmacies (68.0%) arranged medical history files of service users by recording medical history in the electronic pharmacy management program ($n=29$, 98.0%), and using the physical documentation system ($n=5$, 10.0%). However, the other 16 pharmacies did not record the medical history of service users (Table 1.).

Table 1. Characteristics of the respondents ($n=50$)

Characteristics	Number	Percentage
1. Gender		
Male	21	42.0
Female	29	58.0
2. Education		
Bachelor	46	92.0
Master or Doctoral	4	8.0
3. Role in Pharmacy		
Licensee or Owner	4	8.0
Pharmacist	21	42.0
Licensee and Pharmacist	25	50.0
4. Geographical distribution of stores by region		
Northern (7 provinces)	23	46.0
Central (9 provinces)	14	28.0
Northeastern (4 provinces)	5	10.
Southern (4 provinces)	4	8.0
Eastern (2 provinces)	3	6.0
Western (1 provinces)	1	2.0



5. Drugstore location's community traits		
municipality	49	98.0
non-municipality	1	2.0
6. Type of Pharmacies		
Standalone	36	72.0
Chain store / Franchise	13	26.0
Community Laboratory under School of Pharmacy	1	2.0
7. Community Pharmacy Accreditation		
Accredited Pharmacy	11	22.0
None-accredited Pharmacy	39	88.0
8. Participating in governmental initiatives		
Mor Prom Station Project	21	42.0
Near-home Medicine Pick-up Project	10	20.0
RX Pharmacist Volunteer Project	6	12.0
9. Medical history recording system		
Electronics program	29	58.0
Physical documentation system (Paper)	5	10.0
Do not record	16	32.0

Telepharmacy Services of the Community Pharmacies

In giving telpharmacy services of the community pharmacies, it was found that, 7 pharmacies (14.0%) had provided telepharmacy services before the COVID-19 outbreak in Thailand while 16 pharmacies (32.0%) later provided telepharmacy services after the COVID-19 spread. The reasons why the pharmacies did not provide telpharmacy services (Table 3) included

pharmacies' heavy workload (n=21, 17.4%), difficulty in arranging patient registration and medical records (n=14, 11.6%), pharmacies' unreadiness in terms of technology (n=13, 10.7%), pharmacies' being unable to perform standard medicine delivery to patients (n=13, 10.7%), and a small number of telepharmacy service users (n=13, 10.7%) respectively.

Table 3. Reasons why the pharmacies did not provide telpharmacy services.

Reasons (n=121)	<i>Number</i>	<i>Percentage</i>
1. Heavy workload in the pharmacy	21	17.4
2. Difficulty in registering patient registration and arranging history files	14	11.6
3. Unreadiness in terms of technology	13	10.7
4. Being unable to perform standard medicine delivery to patients	13	10.7
5. A small number of telepharmacy service users	13	10.7
6. Difficulty in the audio or video recording system	10	8.3
7. Service users' noncollaboration in audio or video recording	8	6.6
8. Service users not giving consent for pharmacists to access their data	7	5.8
9. Difficulty in making appointment for medicine delivery	7	5.8
10. Difficulty in contact channels with service users	6	5.0
11. Higher cost in giving telepharmacy service	5	4.1
12. Others	4	3.3



Contact Channels Between the Community Pharmacies and Service Users

Before the COVID-19 pandemic, the channels which the community pharmacies arranged for contacting with service users were contact by telephone (n=34, 68.0%), shop visit (n=30, 60.0%), and contact through communication applications such as Facebook, Line, Skype (n=29, 58.0%) respectively. After the COVID-19 pandemic, the channels which the community pharmacies arranged for contacting with service users were contact by telephone (n=44, 88.0%), contact through communication applications (n=42, 84.0%), and shop visit (n=36, 72.0%) respectively. After the COVID-19 pandemic, it was found that the pharmacies increased giving services through communication applications ($p=0.003$) and by telephone ($p=0.008$) with statistical significance, compared to contact channels before the COVID-19 pandemic (Table 4).

To monitor effects of medicine use, before the COVID-19 pandemic, the pharmacies monitored the

medicine effects by requesting service users to visit shop (n=39, 78.0%), following up by telephone (n=28, 56.0%), not following up the medicine effects on service users (n=14, 28.0%), and following up through village health volunteers (n=2, 4.0%) respectively. However, after the COVID-19 pandemic, the pharmacies monitored the medicine effects by telephone (n=38, 76.0%), requesting service users to visit shop (n=38, 76.0%), not following up the medicine effects on service user (n=15, 30.0%), and following up through village health volunteers (n=6, 12.0%) respectively. After the COVID-19 pandemic, the pharmacies increased monitoring the medicine effects by telephone ($p=0.04$) and following up through village health volunteers ($p=0.046$) with statistical significance, compared to their monitor before the COVID-19 pandemic (Table 4). The programs which the pharmacies used for telepharmacy services (Table 5) were communication applications such as Line and Facebook.

Table 4. Contact channels between pharmacies and customers (n=50)

Communication channels	Number of Pharmacies (Percentage)		<i>p</i> – value ³
	Before ¹	After ²	
Channel for customers to reach out to the pharmacy.			
1. Get in touch with the store directly.	30 (60.0)	36 (72.0)	0.071
2. Telephone	34 (68.0)	44 (88.0)	0.008*
3. Communication Application (Facebook, Line, Skype)	29 (58.0)	42 (84.0)	0.003*
Channel for pharmacy to follow up patients			
1. No follow up service	14 (28.0)	15 (30.0)	0.564
2. Get in touch with the store directly.	39 (78.0)	38 (76.0)	0.052
3. Telephone	28 (56.0)	38 (76.0)	0.004*
4. Community health volunteers	2 (4.0)	6 (12.0)	0.046*

Note: ¹Before the pandemic refers to implementation before the COVID-19 pandemic in Thailand; ²After the pandemic refers to implementation after the COVID-19 pandemic; ³Wilcoxon Signed-Rank Test; *Statistical significance ($p<0.05$)

Observances of Telepharmacy Standards

Observances of telepharmacy standards among the community pharmacies according to the Notification of the Pharmacy Council of Thailand are shown in Table 6. It was found that 9 pharmacies (56.25%) arranged pharmacists to give telepharmacy services. The observance of telepharmacy standards which the community pharmacies mostly performed were in taking

medical history about medicine allergy/adverse symptoms (n=12, 75.0%) and medicine use (n=12, 75.0%), giving information about the medicines listed in prescriptions which the service users receive (n=12, 75.0%), explaining how to use medicines (n=12, 75.0%), giving information about cautions or warnings of medicine use (n=12, 75.0%), and delivering medicines in



accurate and complete types and numbers (n=12, 75.0%) respectively.

The observance of telepharmacy standards which the community pharmacies rarely performed were in examining patient registration with medical facilities as indicated in the prescriptions (n=7, 43.8%), requesting service users for consent in audio or video recording

while giving services (n=5, 31.5%), requesting service users for consent in accessing their medical history (n=5, 31.5%), registering and recording medical history of service users (n=4, 25.0%), and assessing suitability of medicines according to data from therapeutic drug monitoring or related laboratory results (n=4, 25.0%).

Table 5 Telepharmacy Platforms Used in Community Pharmacies (n=16)

Telepharmacy Platforms	Number of Pharmacies (Percentage)	
	Before the pandemic ¹	After the pandemic ²
1. Line	10 (62.5)	16 (100.0)
2. Facebook	10 (62.5)	13 (81.3)
3. WeChat	1 (6.3)	1 (6.3)
4. Zoom Meeting	0 (0.0)	2 (12.5)

Note: ¹Before the pandemic refers to implementation before the COVID-19 pandemic in Thailand; ²After the pandemic refers to implementation after the COVID-19 pandemic; ³Wilcoxon Signed-Rank Test; *Statistical significance ($p < 0.05$)

Table 6. Observances of Telepharmacy Standards (n=16)

Telepharmacy Standards	Practice frequency; number (Percentage)				
	Always	Often	Sometimes	Seldom	Never
Regiteration and Medical Record					
1. Pharmacists function as service providers.	9 (56.25)	1 (6.25)	1 (6.25)	4 (25.00)	1 (6.25)
2. Register and record the treatment history of service recipients.	5 (31.25)	2 (12.50)	2 (12.50)	3 (18.75)	4 (25.00)
3. Seek authorization to record audio or visual content during the service.	2 (12.50)	3 (18.75)	4 (25.00)	2 (12.50)	5 (31.25)
4. Solicit the service recipient's permission before accessing medical history	3 (18.75)	5 (31.25)	2 (12.50)	1 (6.25)	5 (31.25)
Patient's History Taking					
5. Ask about medical history and underlying disease	12 (75.00)	3 (18.75)	0 (0.00)	1 (6.25)	0 (0.00)
6. Ask about medication history	11 (68.75)	4 (25.00)	0 (0.00)	1 (6.25)	0 (0.00)
7. Ask about drug allergy/adverse reactions	12 (75.00)	4 (25.00)	0 (0.00)	0 (0.00)	0 (0.00)
8. Ask about food supplement or herbal products history	9 (56.25)	6 (37.50)	0 (0.00)	1 (6.25)	0 (0.00)
9. Ask about medication use following the directions	8 (50.00)	5 (31.25)	1 (6.25)	2 (12.50)	0 (0.00)
Medication Dispensing					
10. Contact the patient before delivering the medication.	5 (31.25)	4 (25.00)	3 (18.75)	3 (18.75)	1 (6.25)



11. Verified the patient's identity and history record.	5 (31.25)	4 (25.00)	1 (6.25)	4 (25.00)	2 (12.50)
12. Inform clients about their medications.	12 (75.00)	4 (25.00)	0 (0.00)	0 (0.00)	0 (0.00)
13. Provide instructions on the drug administration.	12 (75.00)	4 (25.00)	0 (0.00)	0 (0.00)	0 (0.00)
14. Provide information about drug warning or precautions.	12 (75.00)	4 (25.00)	0 (0.00)	0 (0.00)	0 (0.00)
15. Controlling the temperature condition during the medication transportation	8 (50.00)	7 (43.75)	1 (6.25)	0 (0.00)	0 (0.00)
16. Tracking system has been set up for medication transportation.	9 (56.25)	3 (18.75)	0 (0.00)	2 (12.50)	2 (12.50)
17. Deliver complete, accurate medicine types and quantities	12 (75.00)	4 (25.00)	0 (0.00)	0 (0.00)	0 (0.00)
18. Transport medicines to service recipients at the specified location and time.	9 (56.25)	6 (37.50)	0 (0.00)	0 (0.00)	1 (6.25)
19. Follow-up the clinical outcomes of the medication	6 (37.50)	4 (25.00)	2 (12.50)	2 (12.50)	2 (12.50)
Dispensing medicine according to prescription					
20. Verify the patient's registration status with the medical institution.	3 (18.75)	3 (18.75)	1 (6.25)	2 (12.50)	7 (43.75)
21. Evaluate the suitability of the dosage form	8 (50.00)	3 (18.75)	1 (6.25)	1 (6.25)	3 (18.75)
22. Evaluate the suitability of the drug potency/strength.	8 (50.00)	3 (18.75)	1 (6.25)	1 (6.25)	3 (18.75)
23. Evaluate the suitability of the drug doses.	8 (50.00)	3 (18.75)	1 (6.25)	1 (6.25)	3 (18.75)
24. Evaluate the suitability of the drug frequency of administration.	8 (50.00)	3 (18.75)	1 (6.25)	1 (6.25)	3 (18.75)
25. Evaluate the suitability of the duration of treatment.	8 (50.00)	3 (18.75)	1 (6.25)	1 (6.25)	3 (18.75)
26. Evaluate the suitability of the drug quantity.	8 (50.00)	2 (12.50)	2 (12.50)	1 (6.25)	3 (18.75)
27. Evaluate the appropriateness of using special drug techniques.	7 (43.75)	3 (18.75)	2 (12.50)	1 (6.25)	3 (18.75)
28. Evaluate the risk of drug interaction.	7 (43.75)	4 (25.00)	1 (6.25)	1 (6.25)	3 (18.75)
29. Evaluate the risk of adverse drug reactions.	7 (43.75)	4 (25.00)	1 (6.25)	1 (6.25)	3 (18.75)
30. Evaluate the suitability of medications based on patient populations with specific care needs such as child, pregnant woman.	7 (43.75)	4 (25.00)	1 (6.25)	1 (6.25)	3 (18.75)
31. Evaluate the suitability of drug belonging with serum drug level.	4 (25.00)	4 (25.00)	3 (18.75)	1 (6.25)	4 (25.00)



4. Discussion

This study reveals that in the situation of the COVID-19 pandemic in Thailand, the number of pharmacies which gave telepharmacy services increased from 16% ($n = 7$) to 32% ($n=16$) probably because the pharmacies believed that telepharmacy could maintain the number of customers or service users, especially when service users could not go out of their homes. Moreover, telepharmacy could create reliable images for the community pharmacies^[17]. In the USA, the growth rate of telepharmacy increases rapidly, and telepharmacy has been applied until getting public acceptance. Therefore, telepharmacy service is expanded to many states^[17] by issuing legal licenses in 23 states from the total 50 states (46%) while in the other 11 states (22%) are conducting feasibility studies^[18]. The studies with Thai service users found that telepharmacy is an alternative method to facilitate service users not to visit drugstores^[12].

Telepharmacy must have quality according to standards of professional organizations and it must conform to service policies, laws, and ethics for full benefits of service users. Telepharmacy services require pharmacists to be service providers^[7] because telepharmacy is a pharmacy profession as prescribed by the Pharmacy Profession Act that telepharmacy service providers must be pharmacists. This study found that 1 pharmacy (6.25%) did not arrange a pharmacist to be a service provider while the other 6 pharmacies (37.5%) arranged pharmacists to be service providers, but not every time in giving services, probably due to unclear scope of telepharmacy in drugstores^[19,20]. In addition, some types of service in drugstores such as answering questions about dietary supplement products and selling medical equipment etc., relevant laws does not require responsibility of pharmacists^[20].

Privacy and confidentiality of service users during receiving telepharmacy services are also issues which pharmacists give importance to^[19,20]. Patient's confidentiality is patients' right and it is one of the practices in compliance to professional ethics of pharmacists. However, the result of this study showed that more than 50% of the community pharmacies did not request for service users' consent for audio or video recording while receiving services, and they did not request for service users' consent to access their medical history. Moreover, 6 pharmacies (37.5%) which

provided telepharmacy service did not have the system of service users' medical history. Therefore, suitable telepharmacy programs or platforms for community pharmacies are needed and should be supported^[19], especially for single pharmacies which have limited budget to invest in creating service platforms^[20]. The result of this study showed that 30.6% of the community pharmacies did not provide telepharmacy service due to obstacles in technology and the systems for recording patients' data (Table 4).

In terms of necessary medical history taking, pharmacists in this study conformed well to the telepharmacy standards. Most of the community pharmacies regularly performed medical history taking about sickness, medicine use, and allergies. This finding is consistent with the study of Maneemai et al.^[21] which also found that pharmacists in drugstores performed medical history taking necessary for giving services according to Good Pharmacy Practice. Regarding drug delivery to service users, the community pharmacies gave necessary information about medicine use to service users such as giving information about medicines listed in prescriptions which the service users receive and cautions or warnings about medicine use. This finding is consistent with the previous studies in telepharmacy in drugstores which found that pharmacists gave information about indications, use methods, and adverse symptoms while delivering medicines to service users^[21] as such service providers in drugstores gave importance to such information more than to other information^[22].

In Thailand, doctors and pharmacists can prescribe and dispense medicines to patients by themselves according to types of medicines as prescribed by laws, but dispensing medicines according to prescription is still the responsibility of pharmacists in drugstores^[23]. The result of the study showed that most pharmacists in the community pharmacies complied to the standards, especially in examining suitability of medicines listed in prescriptions in terms of medicine types, doses, uses, frequency, and treatment duration. However, the study found that the community pharmacies did not examine patient registration with medical facilities as indicated in the prescriptions probably. This might be because some patients participated in the Near-home Medicine Pick-up Project of Ministry of Public Health. This project has a system for coordinating data between hospitals and community



pharmacies in the project so examination of patient registration with medical facilities is not necessary^[24].

This study has two main limitations. Firstly, the study was conducted with the smaller number of participants than the number pre-calculated for the sample size due to time limitation in data collection. Moreover, although the online survey was quick and convenient, some respondents could not access the questionnaire. Therefore, future studies should extend period of data collection or using other additional methods such as survey by post etc.^[22,25]. Secondly, the data collection was in the form of self-report, there might be bias in giving data. However, this method is still commonly used in health science studies and the study results are considered to be accurate and reliable in reflecting operation of drugstores^[26,27]. Other objective methods of data collection such as visiting drugstores or using simulated patients^[21] as used in other studies should be considered to apply suitably.

5. Conclusion

The results of this study showed that the community pharmacies collaborated well in observances of the telepharmacy standards, most community pharmacies regularly complied to the standards. However, they should be promoted or reinforced to be aware of other additional operations such as recording medical history, requesting patient consent for audio or video recording while giving services, and examining registration of service users at medical facilities. Related organizations should support the community pharmacies to give telepharmacy service with higher quality for people to receive convenient and standard services.

Acknowledgement

This research project received funds from the School of Pharmaceutical Sciences, University of Phayao. The researcher would like to thank all pharmacists who responded to the questionnaire in this study.

6. References

1. Palipat T. Lessons from Thailand's response to the COVID-19 pandemic. *Thai Journal of Public Health*. 2020;50(3):268–277.
2. Ministry of Public Health (Thailand). Public Health Practice Guidelines for Management in the COVID-19 Pandemic, Issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situation B.E. 2548 (2005) (No.1) [Internet]. 2020. [cited 2022 April 1]. Available from: https://ddc.moph.go.th/viralpneumonia/file/g_othe_r/g_other02.pdf.
3. Racha P, Kongros J, Sodchien T. The development of nursing service system for chronic non-communicable (NCDs) patients in the COVID-19 outbreak situation. *Region4-5 Medical Journal*. 2020;39(3):414-26.
4. Songsermpong S, Bunluesin S, Khomgongsuwan P, Junthon S, Cazabon D, Moran AE, et al. Innovations to sustain non-communicable disease services in the context of COVID-19: report from Pakkred district, Nonthaburi province, Thailand. *Global Heart*. 2021;16(1):44.
5. Thanakijombat T, Bhatiasavi V, Suwanposri S. Public adoption of telehealth technology in Thailand. *Journal of Global Business Review*. 2022;24(1):14-33.
6. Limpananont J, Kittiwongsunthorn W, Sakulbumrungsil R, Tuntayothin W, Sripanidkulchai K, Kessomboon N, et al. Development of telepharmacy practice guideline in Thailand. Nonthaburi: Health Systems Research Institute; 2021.
7. The Pharmacy Council of Thailand. Notification of The Pharmacy Council of Thailand No. 56/2563 for Standards and Procedures for Telepharmacy [Internet]. 2020. [cited 2022 April 1]. Available from: https://www.pharmacycouncil.org/index.php?option=content_detail&menuid=68&itemid=1846&catid=0
8. Thailand Food and Drug Administration. Statistics on the number of different types of community pharmacies in Thailand B.E. 2564 [Internet]. 2021. [cited 2021 Sep 13]. Available from: <https://www.fda.moph.go.th/sites/drug/SitePages/Statistic.aspx>.
9. Cochran WG. Sampling Techniques. 3rd ed. New York: John Wiley & Sons; 1977.



10. Yusoff MSB. ABC of Content validation and content validity index calculation. *Education in Medicine Journal*. 2019;11(2):49–54.
11. Taber KS. The use of Cronbach's Alpha when developing and reporting research instruments in science education. *Research in Science Education*. 2018;48(6):1273–96.
12. Limwilairatana K. A study of Thais' attitudes toward telepharmacy [Independent Study of Master of Sciences Program in Marketing]. Pathum Thani: Thammasat University; 2020.
13. Dongnadeng HA, Nimket N, Thiangtham N, Rongdach W, Rongdach W. Coping mechanisms for the COVID-19 pandemic of Khuan Pring Subdistrict Administrative Organization, Mueang district, Trang province. *Local Administration Journal*. 2021;14(3): 291-308.
14. Ela S, Wani I, Doloh A, Khaosung W, Maneenin P. Addressing, response, and prevention of the Coronavirus Disease 2019, Muang Tia Subdistrict Administrative Organization, Mae Lan district, Pattani province. In: Hatyai University. *Proceeding of the 12th Hatyai National and International Conference*; 2021 June 25; Songkhla, Thailand: Hatyai University; 2021 [cited 2022 April 1]. p.466-78. Available from: <https://www.hu.ac.th/conference/conference2021/Proceeding/index.html>.
15. Sohyama S, Kiya A, Ibrahim I, Khaosung W. Management of the Noen Ngem Subdistrict Administrative Organization towards people during the COVID-19 situation in Ranam district, Yala province. In: *Proceeding of National Conference in Applied Research*; 26 March 2021; Pathum Thani, Thailand: North Bangkok University Rangsit Campus; 2021. p.54-67.
16. Juthong S. Disaster management for COVID-19 in the Rimklong Hua Mak Noi community, Bangkapi district [Internet]. Ramkhamhaeng University [cited 2022 April 1]. Available from: <http://www3.ru.ac.th/mpaabstract/index.php/abstractData/viewIndex/279>.
17. Le T, Toscani M, Colaizzi J. Telepharmacy: a new paradigm for our profession. *Journal of Pharmacy Practice*. 2020. 33(2):176-182.
18. Tzanetacos G, Ullrich F, Meuller K. Telepharmacy rules and statutes: a 50-state survey. *Rural Policy Brief*. 2017;4:1-4. PMID: 28820564.
19. Jindasook C. Exploring drivers and barriers towards utilizing telepharmacy among pharmacists in Bangkok. [Independent Study of Master of Management Program]. Bangkok: Mahidol University; 2020.
20. Na Lampang W. Development of telepharmacy effected to new normal pharmaceutical care services in Thailand. [Independent Study of Master of Management Program]. Bangkok: Mahidol University; 2021.
21. Maneemai O, Jaipinta T, Rattanatanyapat P. Evaluation of community pharmacy personnel in pharmaceutical services using the simulated patient. *Thai Bulletin of Pharmaceutical Sciences*. 2020;15(2):47-57.
22. Tungsawatdirat T, Kongchai K, Maneemai O. Behaviors and attitudes of medication label writing according to the Good Pharmacy Practice of northern community pharmacists. *Thai Bulletin of Pharmaceutical Sciences*. 2018;13(2):117-27.
23. Kidpun P. Separation of prescribing and dispensing. *FDA Journal*. 2017. 24(2):4-8.
24. Loatrakul O. The success of near-home medical pick-up project according to new normal medical service in Nakhon Pathom province. *Region 4-5 Medical Journal*. 2021;4(2): 283-294.
25. Parinyarux P, Suwannaprom P. Attitudes and stage of change towards participation to the community pharmacy development and accreditation project of pharmacists drug store owners in Muang district, Chiang Mai province. *Thai Pharmaceutical and Health Science Journal*. 2014; 9(4):164-9.
26. Eva KW, Regehr G. Self-assessment in the health professions: a reformulation and research agenda. *Acad Med*. 2005;80(10 Suppl):S46-54.
27. Ross JA. The reliability, validity, and utility of self – assessment. *Practical Assessment, Research, and Evaluation*. 2006;10(11):1-8.