



**THE ROLE OF PHARMACIST ON CUSTOMERS'
PURCHASING DECISION FOR NON-PRESCRIPTION
MEDICATIONS AT DRUGSTORES IN THAILAND**

BY

MR. REWAT WONGFUTAN

**AN INDEPENDENT STUDY SUBMITTED IN PARTIAL
FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE PROGRAM IN MARKETING
(INTERNATIONAL PROGRAM)
FACULTY OF COMMERCE AND ACCOUNTANCY
THAMMASAT UNIVERSITY
ACADEMIC YEAR 2016
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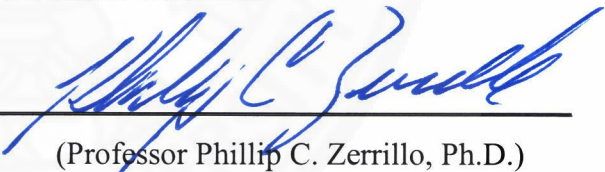
ENTITLED

THE ROLE OF PHARMACIST ON CUSTOMERS' PURCHASING DECISION
FOR NON-PRESCRIPTION MEDICATIONS AT DRUGSTORES IN THAILAND

was approved as partial fulfillment of the requirements for
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ABSTRACT

Community retail pharmacy is a primary source of treatment medications that plays a vital role in delivering quality health care to people. Improper drug use is a circumstance that potentially reduces desired treatment outcomes which can lead to ineffective drug therapy. This is recognized as a critical problem, causing both individual and society suffering and decreasing quality of health life. Most drug-associated harms are avoidable and community pharmacies are assuming an active role in preventing and solving this challenging public health problems among people.

The purpose of this research is to identify common problems relating to the inappropriate drug use in pharmacies channel as well as to define how community pharmacists handle these kinds of issues. Mixed methods of both qualitative interviewing and quantitative survey have been used for this study in order to ensure the best way to balance both qualitative and quantitative research. The online survey research was conducted in community pharmacies with the total number of 160 qualified respondents. The result shows that inappropriate drug choice and improper dose/duration use of drug are considered as the most important problems encountered in retail pharmacies setting. In addition, the study also showed that participated pharmacists react differently based on the problem category and its level

of seriousness. Although most of the pharmacists are capable of identifying the problems, the studied community pharmacists change their position from not dispensing to dispense those unsuitable options if they fail to convince the patients to accept the correct way of drug therapy. This specific problem management by the pharmacists needs to be more fully studied.

Keywords: Retail pharmacy, Drug-related problems, Community pharmacy



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CHAPTER 1

INTRODUCTION

1.1 Introduction to the Study and Research Purpose

Retail pharmacy business is one important sector of healthcare service system which is very close to the population at large. In addition to the duty of medications dispensing to the people, pharmacies play an important role of being a reliable healthcare service channel for the community. In Thailand, drugstore is perceived as one of the friendliest alternative for the people to access its service for their mild illnesses, which are not severe to go to hospitals, such as headache, fever, diarrhea and constipation, etc.

It is expected that market opportunity for retail pharmacy business in Thailand will be growing continuously. There are several big name players, both Thai and foreign companies, which have a solid plan to jump into the competition (Kasikorn Research Center, 2015). One of the big impacts toward Thai pharmacists, regardless of whether they are working in franchises of international retail brands stores or even running their own pharmacies, is that they have been eclipsed their roles of delivering customers a great service over time. They are now more and more encouraged to do everything to maximize the sales and concerned less on their ultimate responsibilities to protect consumers. This eventually makes the pharmacists more compromises their service standards responding to customers' need which is harmful for both customers and pharmacist community.

In the customers' point of view, there are more accessible to multiple sources of data about self-medication these days. The sources include the internet, friends or relatives. The problem is that customers tend to make their purchasing decisions totally based on these kinds of information without an attempt to seek further advice of healthcare professionals for the confirmation. Consequently, the more medications are accessed by the patients, the more likely it is that those patients will experience medication problem if they don't receive appropriate information from their health care service provider. Key concern among healthcare careers, including pharmacist, is raised whether consumers have selected the most appropriate choice of

medication for themselves and use the medication properly according the standard of care.

With the uncompromisable issue above, this independent study in contemporary topic in applied marketing in public health industry is aimed to learn and collect more and clearer information to get a better understanding about the problem and to use as a basic reference to resolve it before it will get out of hand presenting to all related parties. Furthermore, this study would be of interest to the Ministry of Public Health, community health service professionals associated with medication, and health related to the public.

1.2 Research Objectives

The objectives of this research are described below:

1. To identify problems among Thai pharmacists on consumers' purchasing decision of non-prescription medications in drugstore channel.
2. To define Thai pharmacists' behaviors responding to inappropriate purchasing decisions toward non-prescription medications made by consumers.

1.3 Definition

The definition of the word Non-Prescription Drugs (U.S. FDA, 2015) - A drug which is a substance intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease with main characteristics of Non-Prescription Drugs as followings;

- Drugs that do NOT require a doctor's prescription
- Bought off-the-shelf in stores
- Bought at a pharmacy

CHAPTER 2

REVIEW OF LITERATURE

This chapter contains relevant academic journals and existing research articles on the current situation and common problems which are being faced by the pharmacists in drug stores in Thailand. There are several articles and studies that have been studied from both online and offline sources including books and published journals.

Retail pharmacy business in Thailand is worth approximately THB 34,000-35,000 million in 2015 with a projection to grow due to an increase in the number of people who chose an option of self-medication which is growing over the period (Kasikorn Research Center, 2015). Despite the country's economic downturn and weak consumption, healthcare products and pharmaceuticals are still growing 15-20% annually, higher than many other sectors (Jitpleecheep, 2016). In the midst of red ocean in retail pharmacy business sector in Thailand, the findings from one study indicates that the key strategic guidance for having competitive advantage in the drugstore business is that Drug store should implement the concept of quick-to-change and creative-thinking strategy in order to survive and keep the business healthy (Intharapong et al., 2016).

One research by Chaichanawirote (2014) had been conducted in 23 Thai elderly people using in-depth interview in the topic of “Medication Use Behaviors among the Older Thai Adults”. The result shows that one of the key influential factors that can induce the behavioral change in medication use is social influences factor including family, neighbor, healthcare professionals and medias. With an increase in the medication use among Thai population, pharmacy is one of the channel where could help to solve this problem by adding some responsibilities into their services; monitor medication abuse, give a proper advice and report the problem to responsible party (Anuratpanich, 2016).

An article by Tansathein (2009) provides very important information about the Thai consumer's buying behavior toward medications. It indicates that two out of three of consumers rely on the choices or recommended options made by health care

professionals (medical doctors and pharmacies) and one out of three made their own choices based on suggestions from their friends, relatives and advertisement. The good news is that there is a trend that more customers will opt for the items that are advised by healthcare providers. It suggests that inappropriate drug use is widely found especially antibiotic medications which a lot of customers had self-medicated before seeing doctors or health care professionals. The article suggests that 80 percent of respondents prefers to receive healthcare service at drugstore from full time pharmacist. There is 54 percent of the customers that goes to the drugstore where their chosen medications are available and 98 percent of them that finally gets the one what they want while only two percent eventually accepted the option recommended by the pharmacist. For those without a specific item of medication in their mind before buying, they will buy the suggested choices by the pharmacies. Top five reasons for choosing drugstores among customers are also given as which are: nearby location, full-time pharmacist availability, creditability, staff with good knowledge and its reputation, respectively.

Study by Kaew-On et al. (2012) compared the service quality between the pharmacies accredited by the Pharmacy Council and non-accredited pharmacies by using direct observation as an assessment method. One out of two scenarios was being used during the visit, 1) customer asks for steroid oral tablets, a prescription required medication, by showing a small plastic bag with the name of hospital and prednisolone, without showing any prescription and 2) customer asks for sore throat medication by describing the symptoms of an upper respiratory tract infection which required no antibiotics. The study's result suggests that lower percentage of accredited pharmacies unnecessarily dispensed antibiotics (67%), while 93 percent of non-accredited pharmacies did so (p-value <0.012). The result concludes that the pharmacies accredited by the Pharmacy Council provided a better service quality than non-accredited pharmacies.

All in all, Good Pharmacy Practice (GPP), which is a universal standard for community pharmacist, has been adopted and enforced in Thailand. All pharmacist who are working in Drug store are expected to shift overall service quality, deliver a safe service and build the trust among the customers (Wimonkiitpong, 2013). This practice is one of the tools that the Government authority uses to minimize the problems

of the medications use. However, there is no any mention about the compliance after an implantation.

As summary of the literature, (1) research on behavior in the side of healthcare providers is quite limited, (2) research on pharmacist behavior with measuring an attempt against the wrong decision making by the consumers has never been done, (3) research on the success and failure of influential power of pharmacists has not yet examined, (4) research on retail drugstore has not examined on pharmacist effort putting to change consumers' mind when they make an improper buying decision. The proposed study will provide significant contributions to health and society areas.



CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research Design

Both methods of qualitative and quantitative analyses were used in this study. In the qualitative part, an in-depth interview with 10 pharmacists from different types of drugstore was conducted to identify common problems and its seriousness of customers' purchasing decision for Non-Prescription medications at drugstores. The outcomes from this method have provided a better understanding about the current situation in retail pharmacy in Thailand. In the part of qualitative research, 160 drugstore pharmacist surveys with qualified results were conducted to obtain their behavior responding to inappropriate purchasing decisions made by the customers. The research sample was selected in convenient basis (non-probability) targeting on pharmacists who are working in various types of drugstores.

3.1.1 Qualitative Research

An in-depth interview was used because it allows researcher to obtain information in details about the current situation and define problems on customers' purchasing decision for Non-Prescription medications at the drugstores. The in-depth interview was conducted with 10 respondents in total, consisting on pharmacists from different types of drugstore; including single-store operations, pharmacist-owned multiple store locations, franchise and chain pharmacies. The approaches of face-to-face interview or telephone interview were employed, depending on each respondents' convenience and preference. Each interview session was not more than 45 minutes.

3.1.2 Quantitative Research

This research method has provided insightful information of some aspects about pharmacists' behavior responding to inappropriate decision making. This method was conducted by using online-based type questionnaires to obtain a total qualified results from 160 respondents. The questionnaire completion duration took approximately 15 minutes each. The obtained data was analyzed and interpreted. Two different case scenarios of the problems were included in the questionnaire. There are

two different scenarios of different levels of seriousness in each problem. That mean there four scenarios were used for the study survey. The first and second scenarios are the case of serious and non-serious inappropriate dosing or duration of treatment while the third and fourth scenarios are the cases about inappropriate drug choice with different level of seriousness respectively. All four scenarios are independent of one another. These and the following cases are taken from the questionnaire:

- Case number 1 (Non-serious inappropriate drug choice): If a patient with sore throat symptoms comes to your store and requests for antibiotics medication by describing the symptoms of a viral upper respiratory tract infection which required no antibiotics.
- Case number 2 (Serious inappropriate drug choice): A pregnant women comes to your store with migraines headache and requests for Ergotamine medication as she used to take it before and this drug worked very well with her.
- Case number 3 (Non-serious inappropriate dose/ duration of treatment) :If a patient come to you with an acute bacterial sinusitis with adequately diagnosed. You have decided to dispense full proper course of antibiotics medication. However, patient want to buy only a certain amount for only few days, not the full course.
- Case number 4 (Serious inappropriate dose/ duration of treatment) :A newly diagnosed hypertension (high blood pressure) patient who is currently on the treatment under doctor's care comes to your store to refill his/her Antihypertensive medication. He/she tell you that his blood pressures are still very high (150/100) after starting the treatment for a month, thus he/she would like to buy the same drug prescribed by the doctor and double the dose from his present taking dose.

3.2 Sampling Methods

The sampling procedure for this research is convenient sampling (non-probabilistic) due to a time constraint. The respondents were recruited through personal connections.

1. An in-depth interview with total of 10 participants. All recruited participants are registered pharmacists who are working at the drug stores.
2. A survey was conducted with total of qualified results of 160 respondents. The questionnaires will be distributed to drugstore pharmacists.

3.3 Data Collection

As per the sampling methods session, the data collection has been conducted from two main sources, which are in-depth interview and questionnaires. 10 participants who are registered pharmacists had taken part in this in-depth interview. The questionnaire was distributed via online in order to have a total of qualified 160 respondents who are registered pharmacists.

3.4 Data Analysis

The results from qualitative analysis focus on the problem recognition gathered from in-depth interview. After each in-depth interview the data was interpreted and summarized to define the problem and key findings. Key findings from the in-depth interview were summarized and then used to develop questionnaires for the part of quantitative research.

The research results from quantitative research were collected from self-administered questionnaires. The survey data was encoded and transcribed electronically followed by the data analysis by the Statistical Package for the Social Sciences (SPSS) program, statistical analysis software, in terms of frequency, relationships between variables through cross tabulations, the different between variables, the relationship among variables and other statistical techniques which are appropriate.

From the information that the researcher obtained from the in-depth interview, the researcher then created the dependent and independent variable for analysis.

Table 3.1 Research Variables in Quantitative Analysis

Variables	Research Variables
Stimulus	<ul style="list-style-type: none"> • Non-serious inappropriate drug choice • Serious inappropriate drug choice • Non-serious inappropriate dosing or duration of treatment • Serious inappropriate dosing or duration of treatment
Response	<ul style="list-style-type: none"> • Pharmacists' response to the four different case scenarios <ol style="list-style-type: none"> 1. Dispense or do not dispense the medication upon customers' request 2. Time spent for convincing the patients 3. Dispense or do not dispense the medication after spending time for convincing

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Key Finding from In-Depth Interview

10 respondents were interviewed, all of them are fulltime registered pharmacists who are working as community pharmacist at drugstore. Four of them work at their own independent drugstore while three of them work as employee at independent drugstores. Other three of them are working in well-known Thai and international Chain Drugstore. Their working experience in a role of community pharmacist are ranging from two to more than 30 years with an average year of service of 9.3 years.

The result shows that there are two major categories of problems about inappropriate chosen choices of Non-Prescription medication made by the customers. It shows that 70% of the total cases is the case of incorrect medication use which is requested by the customers while two cases implied to the drug abuse problem which is considered as illegal in Thailand. Another 30% of the total cases is the problem of incorrect dose use of the appropriate drugs which are requested by the customers and agreed by the pharmacists. However, due to a sensitive issue, the illegal case will not be included into this research.

According to the data from the interview, there are three possible root causes that lead to the two main problems. The first cause is 45% of the customers' misunderstanding that leads to choose the drug choice based on their self-experience in the past with the same physical symptoms. No matter the cause of the illness is found that most of the time, it had different cause and required different treatment option. The second reason is that 35% of customers was lack of correct knowledge and made their decisions mainly stick to the recommended choice on unreliable sources, for instance, their non-healthcare professional friends or relatives which are normally based on their personal experiences, while some of the customers tend to search and believe the given advice on the Internet by non-creditable sources. Another 20% of the customers had an intention of illegal use which is the last third reason.

Furthermore, it was found that all of their initial responses when they face with these kind of problems were ethically appropriate as per the professional standard.

They all answered that they will try to explain the customers that why the chosen choice made by them is not suitable for their illness. They said that they normally put their extensive effort to prescribe the patients correct options backed by their strong expertise in the field. In case of the customers who are still insisting on purchasing the incorrect option, they will refused to prescribe the requested items and just simply let them leave the drugstore without any purchasing

4.2 Key Finding from Questionnaire

4.2.1 General Information

In this section, descriptive statistics include frequency and percentage was applied to summarize general information of 160 respondents. It consists of respondent's demographic profiles and general information in regard of drugstore.

From table 4.1, it found majority of respondents are female which is accounted for 61.3%, while 38.8% of the rest is male. Most of participants have age 30-39 (55%), followed by 20-29 (33.1%), 40-49 (6.9%), and 50 or above (5%).

Table 4.1 Respondent's demographic characteristics (n = 160)

Gender and Age Characteristics	Frequency	Percent
Gender		
Male	62	38.8
Female	98	61.3
Age		
20-29	53	33.1
30-39	88	55.0
40-49	11	6.9
50 or above	8	5.0

Table 4.2 General information of respondent's drugstore (n = 160)

Characteristics of Responding Drug Stores and Pharmacists	Frequency	Percent
Type of drugstore		
Independent drugstore	113	70.6
Chains drugstore	47	29.4
Nationality of drugstore		
Thai	142	88.8
International	18	11.3
Accreditation by the Pharmacy Council		
Yes	44	27.5
No	116	72.5
Ownership of the store		
Yes	87	54.4
No	73	45.6
Role		
Full time pharmacist	114	71.3
Part-time pharmacist	46	28.8
The number of years that the shop has been operating		
Below 2 years	30	18.8
2-5 years	60	37.5
6-10 years	28	17.5
Over 10 years	34	21.3
Don't know	8	5.0
The number of service years as Drugstore Pharmacist		
Below 2 years	31	19.4
2-5 years	69	43.1
6-10 years	45	28.1
Over 10 years	15	9.4

According to table 4.2, it found majority of respondents are pharmacist from independent drugstore (70.6%), followed by chain drugstore with 29.4%. 88.8%

of drugstore in this study is Thai drugstore, while only 11.3% was international drugstore. More than half of drugstore was not accredit by the Pharmacy Council (72.5%). 54.4% of respondent is drugstore owner, while 45.6% was not owner. 71.3% and 28.8% of respondent is full time pharmacist and part-time pharmacist, respectively. Most of drugstore was being operated 2-5 years (37.5%), followed by over 10 years (21.3%), below 2 years (18.8%), and 6-10 years (17.5%). Furthermore, most of respondents have 2-5 years that has role of drugstore pharmacist (43.1%), followed by 6-10 years (28.1%), and below 2 years (19.4%). Only 9.4% of the rest have served more than 10 years.

4.2.2 Problems about Non-Prescription Medications those Pharmacists Faced at the Drugstore

In this section, descriptive statistics containing frequency, percentage, mean, and standard deviation was selected to summarize problems about non-prescription medications that pharmacists are facing at the drugstore. It shows that inappropriate medication use (non-rational drug use) is the most common problem that pharmacists are facing at the drugstore, as 68.1% was agreed on this issue. Only 31.9% of respondent commonly faced inappropriate dose or length of use

In case of inappropriate medication use (non-rational drug use) (table 4.4), the result shows 54.4% of respondents faced serious case, which accounted 41.8% in average. The result also shows 61.1% is average successful rate to convince patients do not purchase medicines in case of serious inappropriate medication use (non-rational drug use).

For the case of inappropriate dose or length of use (table 4.3), the result shows 59.4% of respondents faced serious case, accounted of 43.9% in average. The table also shows 62.5% is average successful rate to convince patients do not purchase medicines in case of serious inappropriate dose or length of use.

Table 4.3 Drugstore's problem in regards of inappropriate dose or length of use (n = 160)

Problems in regards of inappropriate dose or length of use	Frequency	Percent
From facing problem of inappropriate dose or length of use, is it a serious case?		
Yes	95	59.4
No	65	40.6
Percentage of serious inappropriate dose or length of use		
Mean \pm S.D (43.9 \pm 23.9)		
Min - Max (0-100)		
Percentage of successful convincing toward serious inappropriate dose or length of use		
Mean \pm S.D (62.5 \pm 24.1)		
Min - Max (0-100)		

From table 4.4, it found friend/acquaintance/colleague is person that most influence toward inappropriate purchasing decision by the customers (41.9%), followed by advertisement (13.8%), and online nonmedical database site (13.1%). Otherwise, the least influence toward inappropriate purchasing decision by the customers is healthcare professional, accounted for 64.4%.

Table 4.4 The influence of persons toward inappropriate purchasing decision (n = 160)

Persons of influence in inappropriate purchasing decision	Frequency	Percent
The person of most influence toward inappropriate purchasing decision by the customers.		
Healthcare professionals	15	9.4
Family members/relatives	20	12.5
Friends/acquaintance/colleague	67	41.9
Advertisement	22	13.8
Social Media	15	9.4
Online nonmedical databases sites	21	13.1
The person of least influence toward inappropriate purchasing decision by the customers.		
Healthcare professionals	103	64.4
Family members/relatives	8	5.0
Friends/acquaintance/colleague	8	5.0
Advertisement	20	12.5
Social Media	12	7.5
Online nonmedical databases sites	9	5.6

4.2.3 Pharmacists' Response Behaviors toward Inappropriate Medicine Purchasing

In this section, descriptive statistics contain frequency, percentage, mean, and standard deviation was selected to summarize pharmacists' response behaviors toward customers who come with inappropriate purchasing decision for non-prescription medications under four cases, which are inappropriate drug choice and inappropriate dose/ duration of treatment in both serious and non-serious cases.

The first case is non-serious inappropriate drug choice, which is assuming that patient with sore throat symptoms comes to their store and request for antibiotics medication by describing the symptoms of a viral upper respiratory tract infection. 90% of respondent do not dispense the antibiotic medication as their request. Within 10 minutes, the average length of time for convincing patient is equal to 6.54. After spending some times with to make the patient to accept no antibiotics, 63.8% of

respondent dispense antibiotic medication, while 36.3% of the rest let the patient leave their store without any purchasing.

The second case is serious inappropriate drug choice, which is an assuming that pregnant woman comes to store with migraines headache and request for Ergotamine medication. 96.3% of respondent do not dispense Ergotamine as their request. Within 10 minutes, the average length of time for convincing patient is equal to 7.78. After spending some times with to make the patient to accept other medication, only 9.4% of respondent dispense Ergotamine to patient, while 90.6% of the rest let the patient leave their store without any purchasing.

The third case is non-serious inappropriate dose/ duration of treatment, which is assuming that patient comes to drugstore with an acute bacterial sinusitis with adequately diagnosed. 62.5% of respondent do not dispense the antibiotic medication as their request. Within 10 minutes, the average length of time for convincing patient is equal to 7.05. After spending times as needed to make the patient to buy the full proper course of antibiotics, 63.8% of respondent dispense antibiotic medication, while 36.3% of the rest let the patient leave their store with no purchasing.

Table 4.5 Pharmacists' response behaviors toward inappropriate purchasing decision for non-prescription medications –serious inappropriate dose/ duration (n = 160)

Pharmacists' response behaviors - serious inappropriate dose/ duration	Frequency	Percent
Dispensation of medication for serious inappropriate dose/ duration of treatment		
	12	7.5
	148	92.5
Length of time to convince patient		
Mean ± S.D (7.38±2.68)		
Min - Max (2-10)		
Dispensation of medication for serious inappropriate dose/ duration of treatment after convincing		
Yes	26	16.3
No	134	83.8

The fourth case is serious inappropriate dose/ duration of treatment (table 4.5), which is assuming that patient who is currently on the treatment under doctor's care comes to store to refill his/her Antihypertensive drug. He/she tells that blood pressures are still high after starting the treatment for some time, thus they want to buy the same prescribed drug and double the dose from his present taking dose. 92.5% of respondent do not dispense the antihypertensive medication as their request. Within 10 minutes, the average length of time for convincing patient is equal to 7.38. 3. After spending some times with to make the patient not to take the double dose of antihypertensive drug, 16.3% of respondent dispense antihypertensive medication, while 83.8% of the rest let the patient leave their store without any purchasing.

4.2.4 The Difference between Drug Stores and Pharmacists' Response Behaviors toward Inappropriate Medicine Purchasing

In this section, paired sample t-test was applied to do comparison analysis between cases between drugstores and pharmacists' response behavior toward inappropriate medicine purchasing. The summary of distribution of response by case is shown in table 4.6. In addition, the outcome of t-test also shows in table 4.7 – 4.13.

Table 4.6 Summary of Distribution of Response by Case (n = 160)

Pharmacists' Response Behaviors	Inappropriate drug choice		Inappropriate dose/ duration of treatment	
	Case 1 (non-serious)	Case 2 (serious)	Case 3 (non-serious)	Case 4 (serious)
Category				
Dispense1	10.0	3.8	37.5	7.5
Dispense2	63.8	9.4	63.8	16.2
Minutes				
Average	6.54	7.78	7.05	7.38
Min	1	0	1	2
Max	10	10	10	10

From table 4.7, it found p-value of all cases is lower than 0.01, which indicates the differences of mean value toward chance of dispensing the medicine before and after convincing toward inappropriate medicine purchasing. The result indicates that respondents intend to dispense medicine after convincing but patient still insists on buying it.

Table 4.7 Summary of comparison the serious and non-serious of inappropriate drug choice and dose/ duration between before and after convincing (n = 160)

Different Category of Inappropriate drug use	Before convincing		After convincing		t	p	Interpretation
	\bar{x}	S.D	\bar{x}	S.D			
Inappropriate drug choice – non serious	.10	.30	.64	.48	12.67	0.00	Supported
Inappropriate drug choice – serious	.04	.19	.09	.29	3.08	0.00	Supported
Inappropriate dose/ duration – non serious	.38	.49	.64	.48	6.88	0.00	Supported
Inappropriate dose/ duration – serious	.08	.26	.16	.37	3.06	0.00	Supported

From table 4.8, it found p-value of all situations is lower than 0.01, which indicates the differences of mean value of pharmacists' behavior and length of time for convincing between case of non-serious and serious of inappropriate drug choice. The result indicates that respondents intend to dispense medicine in case of non-serious inappropriate drug choice higher than serious case. Furthermore, the convincing time of serious case is longer than non-serious inappropriate drug choice.

Table 4.8 Summary of comparison of pharmacists' behavior between case of non-serious and serious of inappropriate drug choice (n = 160)

Pharmacists' behavior	Inappropriate drug choice		Inappropriate drug choice		t	p	Interpretation
	Non-serious		Serious				
	\bar{x}	S.D	\bar{x}	S.D			
Before convincing	.10	.30	.04	.19	2.73	0.00	Supported
Length of time	6.54	2.87	7.78	2.94	5.57	0.00	Supported
After convincing	.64	.48	.09	.29	12.56	0.00	Supported

According to table 4.9, it found p-value of before convincing and length of time is lower than 0.01, which indicates the differences of mean value of pharmacists' behavior and length of time for convincing between case of non-serious inappropriate drug choice and non-serious of inappropriate dose/ duration. The result indicates that respondents intend to dispense medicine in case of non-serious inappropriate dose/ duration higher than non-serious inappropriate drug choice. Furthermore, the convincing time of non-serious of inappropriate dose/ duration is longer than non-serious inappropriate drug choice. However, there is no difference between two cases after convincing ($p > 0.05$).

Table 4.9 Summary of comparison of pharmacists' behavior between case of non-serious inappropriate drug choice and non-serious of inappropriate dose/ duration (n = 160)

Pharmacists' behavior	Inappropriate drug choice		Inappropriate dose/ duration		t	p	Interpretation
	Non-serious		Non-serious				
	\bar{x}	S.D	\bar{x}	S.D			
Before convincing	.10	.30	.38	.49	6.34	0.00	Supported
Length of time	6.54	2.87	7.05	2.81	3.08	0.00	Supported
After convincing	.64	.48	.64	.48	0.00	1.00	Not supported

As seen in table 4.10, it found p-value of before convincing is higher than 0.05, which indicates no differences of mean value of pharmacists' behavior between case of non-serious inappropriate drug choice and serious of inappropriate dose/ duration. Furthermore, the convincing time of serious of inappropriate dose/ duration is longer than non-serious inappropriate drug choice. Importantly, it found respondent dispenses medicine to customer for case of non-serious inappropriate drug choice higher than serious of inappropriate dose/ duration ($p < 0.01$).

Table 4.10 Summary of comparison of pharmacists' behavior between case of non-serious inappropriate drug choice and serious of inappropriate dose/ duration (n = 160)

Pharmacists' behavior	Inappropriate drug choice		Inappropriate dose/ duration		t	p	Interpretation
	Non-serious		Serious				
	\bar{x}	S.D	\bar{x}	S.D			
Before convincing	.10	.30	.08	.26	0.89	0.37	Not support
Length of time	6.54	2.87	7.38	2.68	4.63	0.00	Supported
After convincing	.64	.48	.16	.37	10.72	0.08	Supported

Table 4.11 Summary of comparison of pharmacists' behavior between case of serious inappropriate drug choice and non-serious of inappropriate dose/ duration (n = 160)

Pharmacists' behavior	Inappropriate drug choice		Inappropriate dose/ duration		t	p	Interpretation
	Serious		Non-serious				
	\bar{x}	S.D	\bar{x}	S.D			
Before convincing	.04	.19	.38	.49	8.33	0.00	Supported
Length of time	7.78	2.94	7.05	2.81	3.88	0.00	Supported
After convincing	.09	.29	.64	.48	12.56	0.00	Supported

According to table 4.11, it found p-value of all situations is lower than 0.01, which indicates the differences of mean value of pharmacists' behavior and length of time for convincing between case of serious inappropriate drug choice and non-

serious of inappropriate dose/ duration in both before and after convincing. The result indicates that respondents intend to dispense medicine in case of non-serious inappropriate dose/ duration higher than serious inappropriate drug choice. Furthermore, the convincing time of serious of inappropriate drug choice is longer than non-serious inappropriate dose/ duration.

Table 4.12 Summary of comparison of pharmacists' behavior between case of serious inappropriate drug choice and serious of inappropriate dose/ duration (n= 160)

Pharmacists' behavior	Inappropriate drug choice		Inappropriate dose/ duration		t	p	Interpretation
	Serious		Serious				
	\bar{x}	S.D	\bar{x}	S.D			
Before convincing	.04	.19	.08	.26	1.74	0.08	Not support
Length of time	7.78	2.94	7.38	2.68	2.24	0.03	Supported
After convincing	.09	.29	.16	.37	2.23	0.03	Supported

As seen in table 4.12, it found p-value of before convincing is higher than 0.05, which indicates no differences of mean value of pharmacists' behavior between case of serious inappropriate drug choice and serious of inappropriate dose/ duration. Furthermore, the convincing time of serious inappropriate drug choice is longer than serious of inappropriate dose/ duration ($p < 0.01$). Importantly, it found respondent dispenses medicine to customer for case of serious of inappropriate dose/ duration higher than serious inappropriate drug choice ($p < 0.01$).

From table 4.13, it found p-value of all situations is lower than 0.01, which indicates the differences of mean value of pharmacists' behavior and length of time for convincing between case of serious and non-serious of inappropriate dose/ duration. The result indicates that respondents intend to dispense medicine in case of non-serious inappropriate dose/ duration higher than serious case in both before and after convincing. Furthermore, the convincing time of serious inappropriate dose/ duration is also longer than non-serious case.

Table 4.13 Summary of comparison of pharmacists' behavior between case of serious and non-serious of inappropriate dose/ duration (n = 160)

Pharmacists' behavior	Inappropriate dose/ duration		Inappropriate dose/ duration		t	p	Interpretation
	Non-serious		Serious				
	\bar{x}	S.D	\bar{x}	S.D			
Before convincing	.38	.49	.08	.26	7.42	0.00	Supported
Length of time	7.05	2.81	7.38	2.68	2.66	0.01	Supported
After convincing	.64	.48	.16	.37	10.95	0.00	Supported



CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion and Recommendations

5.1.1 Problems regarding the consumers' purchasing decision of nonprescription medicines in drugstore

Overall Summing up without ethical considerations, the results from both quantitative and qualitative research methods are primarily similar. This is very complex to extract and conclude the coincident. One of the possible reasons is that because they are both methods of research that are limited by variables.

Two main problems that community pharmacists normally deal with in drugstore setting are identified from this study. The first main problem is incorrect drug choice or non-rational drug use which is made by the patients and/or customers. This problem accounts for 68. percent of two major problems of inappropriate drug use at pharmacy channel. Inappropriate duration or dose of use is the second key issue which accounts for 31.9 percent. When we look deeper into the seriousness level, it found that there is a higher percentage of serious inappropriate duration or dose of drug use (59.4%) comparing to the problem of incorrect drug choice or non-rational drug use (54.4%). It is signaling that even if the problem of inappropriate duration or dose of use is less extensive occurred, however, it is prevailed to a greater extent in term of seriousness according to the surveyed participants.

Finally, the report found that people who are the most likely to wield significant influence toward the customers or patients leading to the problems are their friends, acquaintances and/or colleagues which is accounted for 41.9 percent of total sample population of registered drugstore pharmacists. On the other hand, majority of the responded pharmacists (64.4 percent) conclude that healthcare professionals are the person of least influence toward inappropriate purchasing decisions by the customers. To address this issue appropriately and to prevent or minimize the unsuitable drug use, all related parties including all government and private sectors together with both councils of medical and pharmacy professions need to reconsider, revamp and promote the efficient management in medication dispensing. In addition, all mentioned parties should provide a public education in rational drug use across the country to enable them to use medicines in an appropriate, safe and smart way. Last but not least, government

sector and the pharmacy council should encourage the community pharmacists to pay more attention and enhance their roles in planning and implementation of population's health care.

5.1.2 Pharmacists' behaviors responding to inappropriate purchasing decisions toward non-prescription medications made by consumers

According to the results of pharmacists' response behaviors toward customers who come with inappropriate purchasing decision for non-prescription medications under four different scenarios, which are inappropriate drug choice and inappropriate dose/ duration of treatment in both serious and non-serious cases, there are significant differences from chance of dispensing the medicine before and after convincing toward inappropriate medicine purchasing. Given these facts, once the pharmacists have been attempted to convince the customers shifting their decisions making from wrong to the right way, the pharmacist will then accept to dispense the incorrect medicine or inappropriate if the patients still insist on buying it anyway no matter the problem and the severity may be.

When comparing between two levels of seriousness within the same problem with a focus on the dispense rate between before and after convincing attempts. It is observed from research that the dispense rate of an intention to dispense the requested medicine for both before and after giving an attempt to change customers' mind in the cases of non-serious cases are higher than the serious problems. The convincing time of serious cases are longer than non-serious cases as it is supposed to be rational. Likewise, there is another comparison of the difference between the differed level of seriousness and different problems. This includes the non-serious of inappropriate dose/duration problem versus the problem of serious inappropriate drug choice and serious the of inappropriate dose/duration problem versus the problem of non-serious inappropriate drug choice. The pharmacists give the same responses that severity plays more important role than the problem category.

For comparisons of all three dependent variables between different problems which are classified into the same level of severity, the pharmacists have less concern about the non-serious inappropriate dose/duration problem than the problem of non-serious inappropriate drug choice based on a significant higher dispense rate at the first time without no counselling. In contrast, they are willing to spend more time to

educate the patients with the non-serious inappropriate dose/duration problem than the problem of non-serious inappropriate drug choice. Lastly, there is no difference of an intention to dispense the incorrect medications after counselling. Since the results of all three dependent variables are inconsistency, it cannot possibly make a conclusion which non-serious case is even more serious problem. Further study is needed to shed more light on this occurrence. Another comparison between the serious inappropriate dose/duration problem and the problem of serious inappropriate drug choice has been analyzed. It is quite more obvious that the community pharmacists see that the problems of serious inappropriate drug choice are more severe than the serious inappropriate dose/duration problem. Even there is one variable that shows no statistical difference, however, there is a tendency in similar direction. Furthermore, future research also might examine with the same set of Dependent Variables (DVs) as this study but use different Independent Variables (IVs) such as type of drugstore, accreditation, years of pharmacist's experience, shop age, etc.

5.2 Limitation of the study

Even though this study has provided a better understanding on problems faced by Thai pharmacists on consumers' purchasing decision of non-prescription medications in drugstore channel and useful information of their behavior responding to inappropriate purchasing decisions made by consumers, the outcomes from the analysis might require to be used and interpreted carefully since there are certain of addressed limitations. First and foremost, the repeated measurements was applied to the respondents meaning that all pharmacists responded to all four scenarios. This makes it impossible to examine interaction effects between dosage and drug choice as well as to estimate effect sizes for dosage and drug choice. Future research might examine this issue with independent samples (one for each treatment). Second, the research is limited by a time constraint on data collection; this sample size might not be able to an ideal representative of the entire population. Third, by using non-probability sampling method, this undermined an ability to make a generalization from the sample to the total population. Lastly, the problem studied in this research is a set of behavior where ethical decision making will come into play, therefore the result might be inconsistency with what are happening in the real situations.

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APPENDICES



APPENDIX A

SURVEY QUESTIONNAIRE

The role of pharmacist on customers' purchasing decision for Non-Prescription medications at drugstores in Thailand

Part 1: Respondent profile and Basic information of the Drugstore

Gender	<input type="checkbox"/> Male	<input type="checkbox"/> Female
Age	_____ Years	
Type of Drugstore	<input type="checkbox"/> Independent	<input type="checkbox"/> Chains Store
Accreditation by the Pharmacy Council	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Role	<input type="checkbox"/> Full time pharmacist	<input type="checkbox"/> Part-time pharmacist
Ownership	<input type="checkbox"/> Yes	<input type="checkbox"/> No
The number of years that the shop has been operating	_____ Year(s)	
The number of service years in the role of Drugstore Pharmacist	_____ Year(s)	

Part 2: Problems about Non-Prescription medications that pharmacists are facing at the drugstore

1. Please choose one of the following problems which is the most common (most frequent) problem that you normally face on a day to day basis at the drugstore.

<input type="checkbox"/>	Inappropriate medication use (Non- Rational Drug Use)
<input type="checkbox"/>	Inappropriate dose or length of use

2. Please assign if majority of the problem of inappropriate medication use (Non-Rational Drug) that you have been faced is a serious type of inappropriateness or not.

Yes= (serious)

No = (not serious)

3. Thinking of the problem of inappropriate medication use (Non- Rational Drug) that you have been experienced. Please assign the percentage or proportion (out of 100%) that you consider as a serious type of inappropriateness?

-10%-100%

4. Referring to the problem of inappropriate medication use (Non- Rational Drug) that you have been experienced. How much is the approximate success percentage when you try to convince those customers with the problem to avoid that such inappropriateness from happening.

-10%-100%

5. Please assign if majority of the problem of Inappropriate dose or length of use that you have been faced is a serious type of inappropriateness or not.

Yes= (serious)

No = (not serious)

6. Thinking of the problem of inappropriate dose or length of use that you have been experienced. Please assign the percentage or proportion (out of 100%) that you consider as a serious type of inappropriateness?

-10%-100%

7. Referring to the problem of inappropriate dose or length of use that you have been experienced. How much is the approximate success percentage when you try to convince those customers with the problem to avoid that such inappropriateness from happening.

-10%-100%

8. Please select the most each of the following person of influence toward inappropriate purchasing decision made by the customers.

	Healthcare professionals
	Family members/Relatives
	Friends/ acquaintances/ colleagues
	Advertisement
	Social Media
	Online nonmedical databases sites

9. Please select the least each of the following person of influence toward inappropriate purchasing decision made by the customers.

	Healthcare professionals
	Family members/Relatives
	Friends/ acquaintances/ colleagues
	Advertisement
	Social Media
	Online nonmedical databases sites

Part 3: Pharmacists' response behaviors toward customers who come with inappropriate purchasing decision for non-prescription medications.

Please answer how you normally deal with the following problems in the scenarios given below based on your real practice when patient or customer comes to your drugstore with their request and the situation below.

Case number 1 (Non-serious inappropriate drug choice): If a patient with sore throat symptoms comes to your store and requests for antibiotics medication by describing the symptoms of a viral upper respiratory tract infection which required no antibiotics.

- Will you dispense the antibiotic medication as per the request?
 Yes No
- If you are given 10 minutes, how long you will spend with the patient to convince them to agree not to take the antibiotics?
 _____ Mins
- After spending some times with to make the patient to accept no antibiotics, however, the patient still insist to have antibiotic medication. Will you then dispense the antibiotic medication for them? Answer No means you will let the patient leave your store without any purchasing.
 Yes No

Case number 2 (Serious inappropriate drug choice): A pregnant women comes to your store with migraines headache and requests for Ergotamine medication as she used to take it before and this drug worked very well with her.

1. Will you dispense Ergotamine the as per the request?

Yes No

2. If you are given 10 minutes, how long you will spend with the patient to convince them to agree not to take Ergotamine and use other treatment option instead?

_____ Mins

3. After spending some times with to make the patient to accept other medication, however, the patient still insist to take Ergotamine. Will you then dispense the Ergotamine for her? Answer No means you will let the patient leave your store without any purchasing.

Yes No

Case number 3 (Non-serious inappropriate dose/ duration of treatment): If a patient come to you with an acute bacterial sinusitis with adequately diagnosed. You have decided to dispense full proper course of antibiotics medication. However, patient want to buy only a certain amount for only few days, not the full course.

1. Will you depend the antibiotic medication as per the request?

Yes No

2. If you are given 10 minutes, how long you will spend with the patient to convince them to agree to take the full required duration?

_____ Mins

3. After spending your times as needed to make the patient to buy the full proper course of antibiotics, however, the patient still insist to buy only antibiotic medication few days (not the full course). Will you then dispense the antibiotic medication as per their requested amount? Answer No means you will let the patient leave your store without any purchasing.

Yes No

Case number 4 (Serious inappropriate dose/ duration of treatment): A newly diagnosed hypertension (high blood pressure) patient who is currently on the treatment under doctor's care comes to your store to refill his/her Antihypertensive medication. He/she tell you that his blood pressures are still very high (150/100) after starting the treatment for a month, thus he/she would like to buy the same drug prescribed by the doctor and double the dose from his present taking dose.

1. Will you dispense the antihypertensive medication as per the request?
 Yes No
2. If you are given 10 minutes, how long you will spend with the patient to convince them to agree to double the dose?
_____ Mins
3. After spending some times with to make the patient not to take the double dose of antihypertensive drug, however, the patient still insist to take the medication in that way. Will you then dispense the medication as per their requested and allow them to do that? Answer No means you will let the patient leave your store without any purchasing.
 Yes No

APPENDIX B
SPSS OUTPUTS

**Comparison the serious and non-serious of inappropriate drug choice and dose/
duration between before and after convincing by Paired Samples T-Test**

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Inappropriate drug choice – non serious	-.538	.537	.042	-.621	-.454	-12.671	159	.000
Pair 2	Inappropriate drug choice – serious	-.056	.231	.018	-.092	-.020	-3.078	159	.002
Pair 3	Inappropriate dose/ duration – non serious	-.263	.482	.038	-.338	-.187	-6.885	159	.000
Pair 4	Inappropriate dose/ duration – serious	-.088	.361	.029	-.144	-.031	-3.062	159	.003

Six paired comparisons of pharmacists' behavior between 4 cases by Paired Samples T-Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Case 1 VS 2	Dispense Before	.063	.290	.023	.017	.108	2.726	159	.007
	Time	-1.244	2.826	.223	-1.685	-.803	-5.568	159	.000
	Dispense After	.544	.548	.043	.458	.629	12.558	159	.000
Case 1 VS 3	Dispense Before	-.275	.549	.043	-.361	-.189	-6.338	159	.000
	Time	-6.950	2.846	.225	-7.394	-6.506	-30.892	159	.000
	Dispense After	-.538	.548	.043	-.623	-.452	-12.403	159	.000
Case 1 VS 4	Dispense Before	.025	.354	.028	-.030	.080	.894	159	.373
	Time	-7.281	2.697	.213	-7.702	-6.860	-34.152	159	.000
	Dispense After	-.063	.444	.035	-.132	.007	-1.780	159	.077
Case 2 VS 3	Dispense Before	-.338	.513	.041	-.418	-.257	-8.329	159	.000
	Time	.731	2.386	.189	.359	1.104	3.876	159	.000
	Dispense After	-.544	.548	.043	-.629	-.458	-12.558	159	.000
Case 2 VS 4	Dispense Before	-.038	.272	.022	-.080	.005	-1.743	159	.083
	Time	.400	2.258	.178	.048	.752	2.241	159	.026
	Dispense After	-.069	.390	.031	-.130	-.008	-2.227	159	.027
Case 3 VS 4	Dispense Before	.300	.512	.040	.220	.380	7.419	159	.000
	Time	-.331	1.577	.125	-.577	-.085	-2.657	159	.009
	Dispense After	.475	.549	.043	.389	.561	10.947	159	.000

BIOGRAPHY

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