

ความสัมพันธ์ระหว่างระดับความรู้และพฤติกรรมการบริโภคยาชุดของชุมชนในจังหวัดศรีสะเกษ

The Relationship between Knowledge and Use Behavior of Polypharmacy or Ya Chud in a Community in Srisaket Province

นิพนธ์ต้นฉบับ

Original Article

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บทคัดย่อ

วัตถุประสงค์: เพื่อประเมินระดับความรู้และพฤติกรรมการปฏิบัติใช้ยาชุด และทดสอบความสัมพันธ์ระหว่างความรู้กับพฤติกรรมดังกล่าว **วิธีการศึกษา:** การศึกษาสำรวจแบบพรรณนา กลุ่มตัวอย่าง คือ ประชากรบ้านโพธิ์ ตำบลโพธิ์อำเภอเมือง จังหวัดศรีสะเกษจำนวน 172 คน โดยวิธีสุ่มแบบง่าย ใช้แบบสอบถามประเมินความรู้และพฤติกรรมการใช้ยาชุด (อย่างละ 20 ข้อ) นำเสนอข้อมูลโดยใช้สถิติเชิงพรรณนา เช่น ความถี่พร้อมร้อยละ และค่าเฉลี่ยพร้อมส่วนเบี่ยงเบนมาตรฐาน ทดสอบความสัมพันธ์ระหว่างพฤติกรรมการใช้กับลักษณะทางประชากรศาสตร์ด้วย Chi-square test และระหว่างพฤติกรรมการใช้กับความรู้ด้วยสถิติสัมประสิทธิ์สหสัมพันธ์แบบเพียร์สัน **ผลการศึกษา:** กลุ่มตัวอย่างมีความรู้ในระดับต่ำ (ตอบถูกต้อง 41.66%) และมีพฤติกรรมในการใช้ยาชุดระดับปานกลาง (2.6 จากคะแนนเต็ม 10 คะแนน) พบว่าพฤติกรรมการใช้ยาชุดไม่สัมพันธ์กับลักษณะทางประชากรศาสตร์ของตัวอย่าง พบว่าความรู้และพฤติกรรมการใช้ยาชุดด้วยสัมพันธ์กันทางบวกอย่างมีนัยสำคัญ (ค่าสัมประสิทธิ์สหสัมพันธ์ของเพียร์สัน (r) เท่ากับ 0.182, P -value < 0.05) **สรุป:** ประชากรบ้านโพธิ์โพธิ์มีความรู้เรื่องการใช้ยาชุดที่ต่ำ และมีพฤติกรรมการใช้ยาชุดระดับปานกลาง แม้ความสัมพันธ์เชิงบวกจะชี้ว่าความรู้มากก็มีพฤติกรรมการใช้มาก แต่อาจเป็นเพราะยังขาดความตระหนัก ดังนั้น การให้ความรู้เพื่อส่งเสริมพฤติกรรมก็ยังจำเป็น

คำสำคัญ: ความรู้, พฤติกรรมการบริโภค, ยาชุด

Editorial note

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Abstract

Objective: To determine level of knowledge and use behavior on polypharmacy (or Ya Chud) and the relationship between knowledge and the use behavior. **Methods:** In this descriptive survey, study sample was 172 people residing in Ban Poe, Poe sub-district, Muang district, Srisaket province, Thailand recruited by simple random sampling method. We used questionnaires on knowledge and use behavior (20 items each). Results were presented by descriptive statistics including frequency with percentage and mean with standard deviation. Relationship between use behavior and demographic characteristics was examined by Chi-square test and that between knowledge and use behavior was test by Pearson's product moment correlation. **Results:** Knowledge was found in a low level (41.66%) and use behavior a moderate level (mean = 2.6 of 5 points). No relationships between demographic characteristics and use behavior. Knowledge and use behavior was significantly positively correlated ($r = 0.182$, P -value < 0.05). **Conclusion:** People in Ban Poe, Poe sub-district, Srisaket province, had a low level of knowledge and a moderate level of use behavior. Even though there was a positive relationship between knowledge and use behavior, an awareness could be missed. Thus educational program or campaign to promote knowledge and proper use of Ya Chud should be developed.

Keywords: knowledge, consumption behavior, polypharmacy, Ya Chud

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Introduction

Thai Drug Act (BE 2510) defined drugs for the provision of safe and effective use.¹ Inappropriate drug use could be multi-facet in nature. More medications could lead to more adverse effects and more complicate use. The use of multiple drugs for one or more indications or polypharmacy could lead to various problems such as drug interactions and worsen adverse effects. Polypharmacy or Ya Chud in Thai language has been a constant or even ever-growing problem in Thailand.² In Thai context, polypharmacy or Ya Chud is defined as the use of multiple drugs in a given patient for one or more indications. In some cases, it implies unnecessary

use of multiple drugs for a given indication. In some cases, however, it refers to a combination of drugs with unclear purpose. In addition, Wichiratrirat and Punyasit defined Ya Chud as a single-use package of drugs with different appearances, i.e., shapes, sizes, and color. Each package usually contains 3 – 9 tablets/capsules.³ Ya Chud could be combinations of drugs for various purposes, for example those for musculoskeletal disorders, and those tonic purposes. Ya Chud has been distributed nationwide especially in grocery stores at village level. Mobile vendors also supply Ya Chud to

local grocery stores. The use of Ya Chud has been increasing over time.⁴

Most drugs included in the single-use package of Ya Chud are dangerous and specially controlled drugs as defined by Thai Drug Act (B.E. 2510).⁵ For example, steroids which are specially controlled drug are widely included in Ya Chud package.

. Steroids such as prednisolone and dexamethasone are highly dangerous since its moderate- to long-term use could result in serious adverse effects such as osteoporosis, gastrointestinal bleeding and blindness. In addition to steroids, antibiotics, analgesics, non-steroidal anti-inflammatory drugs (NSAIDs), anxiolytics, anti-histamines, and vitamins have been widely used in Ya Chud package.⁶

Ya Chud is one of the inappropriate drug use problems. A systematic review of Elmstahl and Linder indicated that prevalence of inappropriate drug use including polypharmacy was high especially in the elderly regardless of hospital care or primary care. Drugs with frequent problems included diuretics, diabetes drugs, muscle relaxants, and antibacterial drugs.⁷

A study in Thailand by Charoenphol reported that Ya Chud caused edema, hypertension, gastric ulcer, osteoporosis, and bone fracture. It could also slow the process of wound healing, suppress immune system, and suppress adrenal gland function.⁸

Even though adverse effects of Ya Chud has been evident, its popularity in Thailand has been continuously increasing especially among labors and people in rural area. The study by Booddawong and colleagues found that people in rural area self-medicated based on commercially promoted indications of the drugs and the source for the supplies was local grocery shops.⁹ A cross-sectional study by Kaladee explored the use behavior of Ya Chud in a subdistrict in Chaiyapum province for 6 months in 2014.¹⁰ The study found that among 256 participants aged 15 years or older, age, education level, occupation, underlying health problems, and history of musculoskeletal disease were associated with the Ya Chud use behavior with statistical significance. Those with 35 – 60 years of age had a 2.67 times of risk of using Ya Chud compared to those younger than 35 years old (P -value < 0.05). In addition, those older 60 years were 7.73 times more likely to use Ya Chud than those younger than 35 years old (P -value < 0.05).

It has been known that problems of inappropriate drug are more prevalent. These include self-adjusted dose, sharing drugs, unwillingness to learn drug use information, improper drug storage, inability to verify expiry date, forgetting to take medications for chronic illness, and redundant medications from multiple doctor visits for a given illness.

Based on a systematic review of Cashion, polypharmacy was associated with death, and other adverse effects.¹¹ In Thailand, inappropriate drug use was associated with ignorance, unawareness of the adverse effects, a lack of knowledge about drug use, and false beliefs¹² The burdens of inappropriate drug use are multifaceted including a wasted expenses of unnecessary drugs, harmful exposure to unnecessary, more or worsen illnesses caused by drugs, and more overall healthcare expenditures. Certain burdens were also evident in the study of Asipong which explored the use of steroid drugs among patients from communities under the provision of 10 Health Promoting Hospitals in Warinchamrab district, Ubonratchathani province.¹³ The study found that 51% of the patients out-of-pocket self-medicated on drugs other than those prescribed by physicians. About 22% bought drugs suspected of steroid contamination; while 9% took such steroid contaminated drugs. One patient was found to develop Cushing's syndrome. In addition, a large portion of patients lacked an understanding on adverse effects of steroid.¹³ In a study in Srisaket province, village health volunteers screened the use steroid and steroid-contaminated drugs in Khukhan district and found that there were 137 patients suspected of steroid use, 3 cases of Cushing's syndrome and a case of adrenal insufficiency.¹⁴

With problems associated with Ya Chud and lack of understanding of the problems in Srisaket province, this study aimed to determine the behavior of Ya Chud use and related knowledge among people in Srisaket province. Specifically, we explored knowledge and behaviors of Ya Chud use in people in Baan Pho, Pho sub-district, Muang district, Srisaket province. We also examined the relationships between 1) demographic factors and the Ya Chud use behavior, 2) demographic factors and knowledge about Ya Chud, and 3) knowledge and behavior of Ya Chud use. Demographic factors included gender, age, income, education, marital status, and underlying illness. The findings could be useful for planning an effective strategy to relieve the problems not only in Srisaket province, but the rest of the country.

Methods

In this cross-sectional survey study, the study population was 566 individuals in the registry of in Baan Pho, Pho sub-district, Muang district, Srisaket province. Based on sample size estimation of Daniel¹⁵, with a 5% sampling error, the study sample was 172 individuals from the Baan Pho registry estimated from the sample size estimation with finite population correction.¹⁵ Participants were recruited by the simple random sampling. To be eligible, prospective participants had to be 20 years of age or older, used Ya Chud, able to communicate in Thai and willing to participate.

Data collection instrument

The data were collected using three survey questionnaires including demographic information, knowledge about Ya Chud, and the use behavior questionnaire. This set of questionnaires was developed by the authors and tested with 60 university students. The first questionnaire collected demographic information and underlying illnesses using 6 close- and open-ended questions. The second questionnaire, with 20 questions, assessed knowledge about Ya Chud including the definition, benefits and harms of Ya Chud. The **knowledge questionnaire** contained 12 true statements (2, 4, 5, 6, 7, 9, 11, 12, 16, 17, 18 and 19) and 8 false statements (1, 3, 8, 10, 13, 14, 15, and 20). With a score of 1 point for the correct answer and 0 for a wrong one, the possible total score of 20 was achieved and categorized into 4 levels of knowledge; specifically, low (less than 60% correct questions), moderate (60 - 69% correct questions), high (70 - 79% correct answers), and highest level of knowledge (at least 80% correct answers).

The third questionnaire of 20 questions asked the participants about the **use behavior**, i. e., the reasons to use Ya Chud. The questions had a five-point rating scale ranging from 1 (the lowest practice level), to 2 (low practice level), 3 (moderate practice level), 4 (high practice level), and 5 (the highest practice level). The total score was averaged to a scale of 1 - 5 points, and categorized into 5 levels of Ya Chud use behavior; 1.00 - 1.50 (the lowest), to 1.51 - 2.50 (low), 2.51 - 3.50 (moderate), 3.51 - 4.50 (high), and 4.51 - 5.00 (the highest).

The survey was conducted from May 2016 to March 2017. The study was approved by the Ethic Committee for Human

Study of the Faculty of Nursing, Chulalongkornrajavidyalaya University (Approval number: 04-03-2559 on March 24, 2016).

Statistical analysis

Descriptive statistics including mean with standard deviation and frequency with percentage were used for demographic characteristics, the use behavior and knowledge about Ya Chud. Relationships between Ya Chud use behavior and demographic characteristics were tested using Chi-square tests. Association between the scores of Ya Chud use behavior and knowledge was tested using Pearson's product moment correlation test. Statistical significance was set at *P*-value of < 0.05 for all tests.

Results

Of the 172 participants, about two-thirds were women (114 participants or 66.28%) (Table 1). The majority were in their 30 - 60 years of age (49.42%) followed by less than 30 years (47.67%), had a monthly income of 10,000 - 14,999 Baht (42.44%) followed by 5,000 - 9,999 Baht (30.81%), had no formal education (46.51%) followed by primary school (43.60%), and were married (50.58%). While as high as 70.93% of participants had no underlying disease, those who did had hypertension (10.46%) followed by diabetes (8.72%) (Table 1).

Table 1 Demographic and underlying illness characteristics of participants (N = 172).

Characteristics	N	%
Gender		
Male	58	33.72
Female	114	66.28
Age (yrs) min = 20; max = 65		
< 30	82	47.67
30 - 60	85	49.42
> 60	5	2.91
Monthly income (Baht) min = 3,000; max = 14,000		
0 - 4,999	46	26.74
5,000 - 9,999	53	30.81
10,000 - 14,999	73	42.44
Education		
No formal education	80	46.51
Primary school	75	43.60
Middle school or equivalent	17	9.88
Marital status		
Single	54	31.39
Married	87	50.58
Widowed	31	18.02
Underlying disease		
No	122	70.93
Yes	50	29.07
Diabetes mellitus	15	8.72
Hypertension	18	10.46
Gout	7	4.07
Kidney disease	4	2.32
Rheumatoid	6	3.49

By average, 147 participants gave the correct answer for individual questions (41.66%) which could be categorized into the low level of knowledge (Table 2). Among questions with true statements, the most correctly answered questions included “Ya Chud is similar to Thai traditional pill” and “Ya Chud is an anti-inflammatory drug,” (92.44% for both). For 11 false statements, questions with the highest falsely “yes” answers were “Ya Chud could relieve muscle sprain” and “One could not work without the help of Ya Chud,” (i.e., correct answers found only in 4.07% for both). In addition, low proportions of participants could correctly stated that Ya Chud could help treat diabetes and hypertension and prevent cancer (6.98, 12.21, and 11.05%, respectively) (Table 2).

It was found that overall behavior score of Ya Chud use (i.e., the reason to use) was 2.6 points by average which was categorized as a moderate level of the use (Table 3). Of 20 Ya Chud use behaviors, 11 of them were at the moderate level; while the rest 9 behaviors were at low level.

Our study found no relationships between the use behavior of Ya Chud and demographic characteristics. The details are depicted in Table 4.

Once the average score of knowledge about Ya Chud and score of the use behavior was tested for association, significant positive correlation was found with a Pearson’s product moment correlation coefficient of 0.182 (*P*-value < 0.05).

Table 2 Level of knowledge about Ya Chud (N = 172).

Knowledge about Ya Chud	Correct answer		Level of knowledge
	N	%	
Ya Chud could cure illness.*	154	10.47	Low
Ya Chud could cure or relieve body ache.*	154	10.47	Low
Ya Chud is a tonic.*	148	13.95	Low
Ya Chud contains at least two tablets in a package.	149	86.63	Highest
Ya Chud is similar to Thai traditional pill.*	159	7.56	Low
Ya Chud is inexpensive and readily available in local grocery stores.	103	59.88	Low
Anti-inflammatory drug is added to Ya Chud.	129	75.00	High
Ya Chud could prevent cancer.*	153	11.05	Low
Ya Chud is an anti-inflammatory drug.	159	92.44	Highest
Ya Chud could relieve muscle sprain.	165	4.07	Highest
Ya Chud has no label indicating usage and manufacturing date.*	146	15.12	Highest
A long-term use of Ya Chud could cause gastric ulcer.	158	91.86	Highest
Ya Chud is a kind of sleeping pill.*	148	13.95	Low
Ya Chud could help treat hypertension.*	151	12.21	Low
Ya Chud could help treat diabetes.*	160	6.98	Low
Ya Chud is illegal.	110	63.95	Moderate
A long-term use of Ya Chud could cause swelling (or edema).	126	73.26	High
A long-term use of Ya Chud could cause osteoporosis.	156	90.70	Highest
Ya Chud offers a quick relief of body ache.	154	89.53	Highest
One could not work without the help of Ya Chud.*	165	4.07	Low
Overall		41.66	Low

* False statement where “yes” was the incorrect answer.

Table 3 The score and level of Ya Chud use behavior (i.e., the reason to use) (N = 172).

The behavior of Ya Chud use; I use Ya Chud ...	Mean	SD	Level of behavior
because it is inexpensive.	3.0	1.0	Moderate
because it helps relieve body ache.	2.9	1.0	Moderate
by my own decision.	2.4	0.9	Low
as a tonic.	2.8	1.1	Moderate
every time I have a cold.	2.7	0.8	Moderate
to treat diabetes.	2.2	1.0	Low
to treat hypertension.	2.9	0.9	Moderate
to aid the sleep.	2.3	0.9	Low
because it is readily available in local grocery stores.	2.8	0.9	Moderate
according to the neighbor’s recommendation.	2.6	0.8	Moderate
because it has anti-inflammatory drugs.	2.5	0.8	Low
unaware of its adverse effects.	2.4	0.9	Low
to treat diarrhea.	2.6	1.0	Moderate
according to the pharmacist’s advice.	2.5	1.0	Low
as a result of a poor access to public health service.	2.7	0.8	Moderate
that is degraded.	2.3	0.8	Low
after a hard labor work.	2.9	0.9	Moderate
since it is popular in the community.	2.4	0.8	Low
since it is found prevalent in the community.	2.8	0.9	Moderate
as a musculoskeletal tonic.	2.5	0.8	Low
Overall	2.6	0.9	Moderate

Table 4 Relationships between Ya Chud use behavior and demographic characteristics (N = 172).

Characteristics	Number (%) of participants by level of Ya Chud use behavior					<i>P</i> -value*
	Highest (n = 38)	High (n = 40)	Moderate (n = 42)	Low (n = 20)	Lowest (n = 32)	
Gender						
Male (n = 58)	18 (31.03)	8 (13.79)	12 (20.69)	8 (13.79)	12 (20.69)	NS
Female (n = 114)	20 (17.54)	32 (18.60)	30 (17.44)	12 (6.98)	20 (11.63)	
Age (yrs)						
< 30 (n = 82)	1	1	2	1	1	NS
30 – 60 (n = 85)	30	20	55	20	7	
> 60 (n = 8)	3	2	4	2	3	
Monthly income (Baht)						
0 – 4,999 (n = 46)	18	7	24	5	2	NS
5,000 – 9,999 (n = 53)	10 (18.87)	13 (24.53)	8 (15.09)	12 (22.64)	10 (18.87)	
10,000 – 14,999 (n = 73)	10 (13.70)	20 (27.40)	10 (13.70)	13 (17.81)	20 (27.40)	
Education						
No formal education (n = 80)	18 (22.50)	12 (15.00)	25 (31.25)	13 (16.25)	12 (15.00)	NS
Primary school (n = 75)	10 (13.33)	10 (13.33)	30 (40.00)	13 (17.33)	12 (16.00)	
Middle school or equivalent (n = 17)	4 (23.53)	8 (47.06)	2 (11.76)	2 (11.76)	1 (5.88)	
Marital status						
Single (n = 54)	12 (22.22)	10 (18.52)	12 (22.22)	10 (18.52)	10 (18.52)	NS
Married (n = 87)	14 (16.09)	18 (20.69)	15 (17.24)	20 (22.99)	20 (22.99)	
Widowed (n = 31)	7 (22.58)	8 (25.81)	9 (29.03)	3 (9.68)	4 (12.90)	
Underlying disease						
No (n = 122)	70 (57.38)	30 (24.59)	12 (9.84)	8 (6.56)	2 (1.64)	NS
Yes (n = 50)	8 (16.00)	12 (24.00)	7 (14.00)	13 (26.00)	10 (20.00)	

* Chi-square test.

Discussions and Conclusion

Participants in Baan Pho, Pho sub-district, Muang district, Srisaket province had the highest level of knowledge about Ya Chud. The low level of knowledge (41.66%) was worrisome. Especially, certain false statements were mistaken as the truth. For example, high portion of participants thought that Ya Chud could help prevent cancer, and treat diabetes and hypertension. They also thought that Ya Chud could help

them sleep better. These findings were consistent with the work of Witayapichetsakul and Sitthiboot studying in village health volunteers of Kwangthong sub-district, Borthong district of Chonburin province.¹² The majority of volunteers had diabetes and hypertension. These volunteers chose modern medical treatment with local traditional remedies as complementary treatment modality.¹² They also used herbal medicines. These health volunteers did not understand side effects and allergies to medications which could be attributable to the lack of awareness and knowledge about the matters. In addition, misunderstanding on the matters could be due to their false beliefs.

Since many false statements were perceived as the right thing by most participants, this could indicate a relative lack of knowledge in this group of people. A lack of knowledge found in our study was consistent with the study of Kongwong where only 10% of patients with chronic illnesses were acknowledgeable about steroids.¹⁶ In addition, Asipong also reported that 44.8% of patients with chronic illness believed that health products with no proved medical indications could be therapeutic for their problems including hypertension, diabetes, cancer and asthma, and 31.0% reported their neighbors recommended them the products.¹³

Our study demonstrated a lack of knowledge pertaining to Ya Chud. This could be associated with unawareness about its harms and inadequate advice from healthcare providers. The participants could have had information and recommendation from their community members for the use of Ya Chud especially for diabetes, hypertension and cancer which could cause a community-wide use. However, people in Pho sub-district had a high level of knowledge on side effects of steroids particularly for true statements such as a long-term use of steroids could cause gastric ulcer (91.86%), edema (73.26%), and osteoporosis (90.70%). This finding was in contrast with the work of Kaladee¹⁰ where knowledge and attitude toward Ya Chud among the participants were in a low level and needed improvement (70.70%, 95% CI : 64.71 – 76.20). However, even though a relatively high level of knowledge about the dangers of Ya Chud was found, participants in our study still sought for Ya Chud. This could be in part due to the fact that Ya Chud was readily available in the community especially in local grocery stores. The obvious misunderstanding was Ya Chud could cure chronic diseases such as diabetes, hypertension and cancer. However, a pattern of answering “yes” to all false knowledge

statements could make the result of low overall knowledge questionable. Since this pattern of “yes” answer could reflect either or all of these attributes namely the lack of understanding of the statements, the laziness to think thoroughly, and the social desirability of the participants to please the investigators. In this group of rural population, social desirability to comply with healthcare providers was much higher than those in the urban area. This is because the two parties in the rural area have a much closer relationship in their community.

The practice or behavior of using Ya Chud found in our study was moderate with a mean score of 2.6 ± 0.9 out of 5 points. This level was relatively lower than the one found in Kaladee work where as high as 48.05% of people in Phai sub-district (95% CI: 45.65 – 58.21%) used Ya Chud.¹⁰ It was probable that people in Banpho sub-district used Ya Chud for work-related myalgia since most of them were in their working age. In addition, they did not use Ya Chud for underlying illnesses since 70% of them had no chronic diseases.

We also found that no demographic characteristics were associated with the use behavior of Ya Chud. This was in contrast with the work of Kaladee where age was associated with the use of Ya Chud.¹⁰ Specifically those aged 35 – 60 years old had the significantly highest chance of the use behavior.¹⁰ It was also found that the risk of Ya Chud use in those older than 60 years old were 7.73 times of those younger than 35 years old. In our study, however, no age-related risk of Ya Chud could be attributable to the use found relatively even in all age groups, where the most frequent use was found in those aged 30 – 60 years (57.0%), followed by those younger than 30 years (39.7%). In addition, the elderly (older than 60 years old) was not the group with the most use of Ya Chud, with a small proportion of 3.3%.

Lastly, it was found that the use behavior of Ya Chud (i.e., the reason to use) was slightly, significantly associated with the knowledge on the matter in a positive direction ($r = 0.182$, P -value < 0.05). However, this association was a relatively small, if not trivial one. Being different from previous research could be due to bias in selection or sampling method. If this association existed, this also meant that despite knowledge, yet people were unaware of or concerned about the consequence. More studies on psychological process of the use of Ya Chud should be conducted. Furthermore, this kind of unexpected relationship could also in part due to a low content validity of the measurement tools and the biased

answer on the knowledge as described previously. More valid questionnaires on the use and knowledge about Ya Chud should be developed in the future. Despite the unexpected positive relationship of more knowledge with more wrong reason to use Ya Chud, one must keep educating the population, locally and nationwide. Our study also had a relatively small sample size. Future research with a larger sample size should also be conducted.

In conclusion, a low level of knowledge and moderate level of use behavior (or the reason to use Ya Chud) were found in a community of Srisaket province. More educational programs and/or campaigns should be provided in this area, and probably nationwide.

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References

1. Drug Act B.E. 2510. Office of the Council of State. Bureau of Drug Control, FDA, Thailand Ministry of Public Health. (in Thai)
2. Leelakanok N, Holcombe AL, Lund BC, Gu X, Schweizer ML. Association between polypharmacy and death: A systematic review and meta-analysis. *J Am Pharm Assoc* 2017;57(6):729-738.
3. Wachiratrirat P, Punyasit U. Factor of distribution Ya-Chud, steroid drug in grocery in the region of Kok Krua Health Promoting Hospital. *Sirindhorn Coll Pub Health Khon Kaen* 2012;4(1):1-10.
4. Kittiprapus P. Buying-selling of drugs in grocery stores: a case study in Romyen Village, Chiang Mai Province. Independent study. Chiangmai. Graduate School, Chiangmai University, 1992: pp.97-101. (in Thai)
5. Drug Act B.E. 2510. *Government Gazette* 1967;101(17):20. (in Thai)
6. Kamai D. Factors affecting the use of Ya Chud of rural people: a case study of Pasaknoi village Choengdoi sub-district Doi Saket district, Chiang Mai province. Master degree thesis. Chiangmai. Graduate School, Chiangmai University, 1995. (in Thai)
7. Elmstahl S, Linder H. Polypharmacy and inappropriate drug use among older people – a systematic review. *Healthy Aging Clin Care Elderly* 2013;5;1-8
8. Charoenphol V. Factors affecting the decision making on the selling of “Yachud” at grocery stores in rural area of Muang district, Loei province. Master degree thesis. Chiangmai. Graduate School, Chiangmai University, 1996. (in Thai)
9. Booddawong B, Kiatying-Angsulee N, Wanlepong K, et al. Sources and distribution of unlawful medicines in 8 provinces of Thailand to inform the public policy change. *IJPS* 2016;11(suppl):260-268.
10. Kaladee A. Factor related to polypharmacy consumption behavior among people in Tumbon Naphai, Muang District, Chaiyaphum: multivariable analysis. *FDA J* 2014;50-58. (in Thai)
11. Cashion WT. A polypharmacy model and the association of polypharmacy with all-cause mortality and incident cognitive impairment in the REGARDS Cohort. PhD thesis. Atlanta, Georgia, United States. Emory University, 2015.
12. Witayapichetsakul S, Sitthiboot A. Drug use behavior of village health volunteer at Bo Kwangthong sub-district, Bo Thong district, Chonburi province. *Pub Health J Burapha Univ* 2014;9(1):117-128.
13. Asipong S. Health product use behavior with no medical indications among patients with chronic disease at Rasi Salai, Sisaket Province. *Thai J Pharm Pract* 2015;7(2):105-113. (in Thai)
14. Dokphong D. Project evaluation of steroid management by community network in Si-Trakul sub-district, Khukhan district, Sisaket province. *J Health Sci* 2010;19:845-53. (in Thai)
15. Daniel WW. Biostatistics: A foundations for analysis in the health sciences. 7th edition. New York. John Wiley & Sons, 1999.
16. Kongwong R. Project on the screening of patients with chronic diseases and steroids use without medical indications in Warin Chamrap, Ubon ratchathani. Bangkok. Health Consumer Protection Program, 2013. (in Thai)